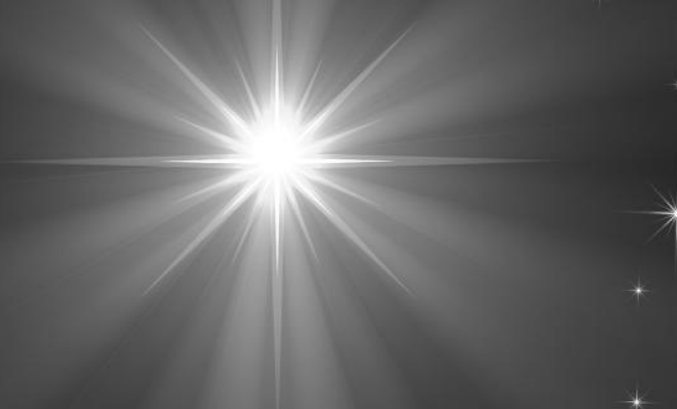


HE IS BORN.



WISE MEN STILL SEEK HIM.

"...In spite of everything, we Americans are still uniquely blessed, not only with rich bounty of our land but by a bounty of the spirit - a kind of year-round Christmas spirit that still makes our country a beacon of hope in a troubled world and that makes this Christmas and every Christmas even more special for all of us who number among our gifts the birthright of being an American."

— Ronald Reagan

MERRY CHRISTMAS
FROM
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WATCHDOG Q&A



Water towers, like this one in Kaukauna along Interstate 41, maintain water pressure for distribution to customers. WM. GLASHEEN/USA TODAY NETWORK-WISCONSIN

How do water towers work? Here's the answer and why it's so important



Watchdog Q&A
Duke Behnke
USA TODAY NETWORK - WIS.

Question: How, exactly, do the water towers in a community function? How are they kept filled, etc.?

Answer: Water towers are among the most visible components of a public water system and often are a source of community pride.

They essentially are elevated tanks that hold drinking water and gravitational energy, and they serve three key purposes:

- They provide water storage to level out the peaks of daily water demand.
- They maintain water pressure, through gravity, to distribute water to customers and ensure proper flow from the faucet.
- They provide backup capacity in case of a power outage or a fire that requires a large amount of water to extinguish.

"Towers work great," Neenah Water Utility Director Tony Mach said. "They just do their job without asking for really much of anything."

Water towers are a part of a water utility's distribution system. To understand their role, it's best to start at the beginning. I'll use the Neenah Water Utility as an example.

Neenah draws raw water from Lake Winnebago. The water is treated — softened, filtered and disinfected — before it's distributed, via high-service pumps and pipes, to residential, commercial, industrial and municipal customers.

The pumped water either goes directly to a customer — maybe someone's taking a shower or washing dishes — or it goes into a water tower. Neenah has two water towers: one on West Cecil Street with a capacity of 1.5 million gallons and one on Towerview Drive with a capacity of 500,000 gallons. The water is stored at the top of the tower. It passes

through pipes in the pedestal, but no water is stored in the pedestal.

Mach said Neenah prefers to run its pumps at night, when demand is lower and electricity is cheaper, to fill the water towers. The tanks then are drawn down during the day as customers awake and begin to use more water.

The cycle of filling and emptying repeats daily, keeping the water in the towers fresh.

Mach said the utility tries to keep the water level in the towers between 120 and 128 feet above ground, which generates a water pressure of 52 to 55 pounds per square inch.

Water utilities can operate without water towers, but then the pumps would need to run constantly to maintain pressure.

Neenah's water towers contain a mixer to keep the water moving inside the tank. The mixer helps to maintain a consistent chlorine residual to protect against waterborne pathogens.

It also prevents the water from freezing in frigid weather. Water towers often are made of steel, are unprotected from the elements and are painted white, which reflects heat from the sun, so ice is an issue.

"Before we had mixers in there, the joke was we got icebergs as big as Volkswagens in those towers," Mach said. "It's amazing what a little bit of mixing energy can do to limit the amount of ice formation."

The Wisconsin Department of Natural Resources requires water towers to be inspected every five years. The process can be done when the tank is full of water with the use of a submersible robot, but every other inspection requires the tank to be drained. At this time, repairs can be made and any sediment can be removed. The tower must be disinfected before it can be filled and returned to service.

Post-Crescent reporter Duke Behnke answers your questions about local government. Send questions to dbehnke@gannett.com or call him at 920-993-7176.

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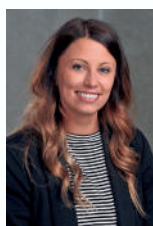
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