



# HOLY TOLEDO!

*Jim Collins  
Business Development Manager  
Brenntag Mid-South, Inc.*

# Toledo, Ohio Issues

- **DO NOT DRINK** Advisory for tap water



## Toledo Issues Do-Not-Drink Advisory for Tap Water



About 400,000 residents in and around the city of Toledo, Ohio, were warned Saturday not to drink tap water after a toxin was detected in the water supply. Ohio Gov. John Kasich declared a state of emergency for Lucas County and neighboring Wood County, the Ohio Department of Public Safety said in a statement. Chemists at a Toledo water treatment plant recorded readings of microcystin, a highly toxic substance that can cause abnormal liver function, diarrhea and vomiting, [according to an advisory](#). Residents were warned not to drink tap water even after boiling because that could increase the toxin's concentration. Residents can still use the tap water to flush toilets but were warned that children shouldn't bathe in the water and pets shouldn't drink it.

Store shelves in and around Toledo were emptied of bottled drinking water within a few hours. Toledo said it would distribute water supplies to affected residents and asked people not try to scalp or sell water. The toxin, the city said, was likely borne from algal blooms in Lake Erie. Toledo spent roughly \$4 million last year in water treatment because of algae concerns and this incident is believed to be the second time in two years a city has issued a do-not-drink advisory because of algae toxins from the lake, The Associated Press reported.

## Algae's lake effect reveals putrid, pea green disaster

Distribution centers offer free relief to community

By **MARISSA MEDANSKY**  
BLADE STAFF WRITER

Deborah Adams biked downtown through the summer heat, arriving at the old Macomber building downtown to grab a free case of water bottles from outside.

"I'm a diabetic," explained Ms. Adams, 56. "I need that water."

She's grateful for the donation, of course. But the water is hard to carry without a car. One volunteer helped Ms. Adams affix the crate to her bicycle before she pedaled home.

Toledoans like Ms. Adams flocked to distribution centers on Sunday to collect free crates of water and other beverages. Some had cars, but many came without vehicles and had to haul the heavy boxes themselves. Others used grocery carts, children's strollers, and even the platforms of motorized scooters as makeshift devices to transport the water.

The water at the Macomber building came from a local disaster relief nonprofit, said Ken Leslie, the founder of the homelessness awareness group

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Melvin Newton of Toledo carries cases he received at the water distribution center sponsored by the Cherry Street Mission.



Shane Gagen of Oregon holds a glass of algae filled Lake Erie water near the Toledo water intake crib on Sunday. The National Wildlife Federation conducted a media boat tour of the area.

THE BLADE/DAVE ZAPOTOSKY

### FOR ASSISTANCE

Agencies are offering assistance to those who are unable to get to water stations and need help with water deliveries:

- In Monroe County, call 724-242-8600.
- The United Way is 211.
- The Toledo-based American Red Cross asks people to call 419-329-6060.

To view water crisis videos, go to our Web site: [toledoblade.com](http://toledoblade.com)



### DO'S AND DON'TS

Health authorities have provided the following recommendations until the water use restrictions are lifted.

#### Do:

- Take baths or a shower, except small children and pets
- Wash clothing, unless you have sensitive skin
- Use residential dishwashers on heat cycle, use cool rinse, and rinse afterward with bottled water

#### Don't:

- Drink any quantity of water
- Boil water
- Brush teeth
- Hand-wash dishes

Source: Dr. David Grossman

— Toledo-Lucas County Health Commissioner



Grossman

### MORE INSIDE

■ Some businesses decide to open even without municipal water available.

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■ A look at how news organizations worldwide are covering the crisis. Page A4.

■ The Toledo Zoo finds ways to keep the animals watered. Page A3.

■ Columnist Keith Burris says problem reflects life. Page A4.

■ BGUSU lands UT football team a helping hand. Page A4.

Officials won't give test results on 2nd day

By **TOM HENRY**  
BLADE STAFF WRITER

The most telling sign of western Lake Erie's sickness comes from an up-close view of the putrid, bright green algae surrounding Toledo's water-intake crib, not from the multiple updates provided by public officials in front of television cameras outside of the Lucas County Emergency Services Building.

The lake's rapid deterioration 2 miles off the Toledo shoreline created a gripping sight on Sunday for about 20 people — a combination of journalists, elected officials, and environmentalists — aboard a vessel captained by Vern Meinke, owner of Meinke Marina, of Curtee, Ohio.

Many of them compared the lake's current color to that of pea soup. As Mr. Meinke's boat plied the water, waves behind it looked like thick, green paint.

"What we've experienced here shows us this is a dangerous situation," Toledo Councilman Larry Sykes said.

He's not known for being a rabid environmentalist, nor is he known for failing to speak his mind. He seemed

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## Toxin tests vary, may be why Oregon was able to treat early

By **DAVID PATCH**  
BLADE STAFF WRITER

Measurable levels of microcystin, the toxin emitted by blue-green algae now blooming in Lake Erie's western basin, began turning up in Oregon's untreated water intake in mid-July and reached levels warranting more frequent testing last week, Oregon officials said on Sunday.

But Oregon's water treatment plant had begun treating the water for microcystin before it even turned up in the intake because a city official had noticed the devel-

oping algae bloom while out boating on the lake, said Paul Wagner, Oregon's water plant superintendent.

What matters most, said Mr. Wagner and Paul Roman, Oregon's director of public service, is that with treatment, microcystin has not been detected in Oregon's treated water supply — unlike that of neighboring Toledo, which draws its raw drinking water from an intake only about a mile farther away in Lake Erie.

Mr. Wagner theorized that the red-flag test results Toledo got late Friday into

early Saturday — results that prompted a no-drink warning for Toledo's more than 500,000 water customers — were caused by some change in how the neighboring water system tests for microcystin, rather than an abrupt change in the toxin's level.

"I can't speak for what happens in Toledo, but I suspect something changed between Thursday and Friday" in how the test is conducted there, Mr. Wagner said.

But part of the problem

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### AREA CITY WATER INTAKES ON LAKE ERIE

The cities of Oregon and Toledo have close water intakes on the south shores of the western basin of Lake Erie. The city of Monroe, which is in Michigan, is located farther north near the Fermi 2 Nuclear Plant.



THE BLADE

# Toledo Issues

- Analysis showed presence of microcystin





# Microcystin

- Highly toxic substance
- Causes abnormal liver function
- Causes diarrhea
- Causes vomiting



# Microcystin

- Do NOT drink...period!
- Do NOT let pets drink it!
- Do NOT bathe with it!
- Boiling water can increase concentration!



# Microcystin

- Likely borne from algal blooms coming from Lake Erie
- Algae toxins can exist in any surface water source in the United States





# Chemical Treatment Methods Needed

- *Sodium Permanganate*
- *Chlorine (Pre and Post)*
- *Carbon filtration occurred*



# Physical Treatment Needed

- Proper ORP set points
- Backwash of filters increased



# Copper Sulfate

- It was too late for Copper Sulfate treatment!

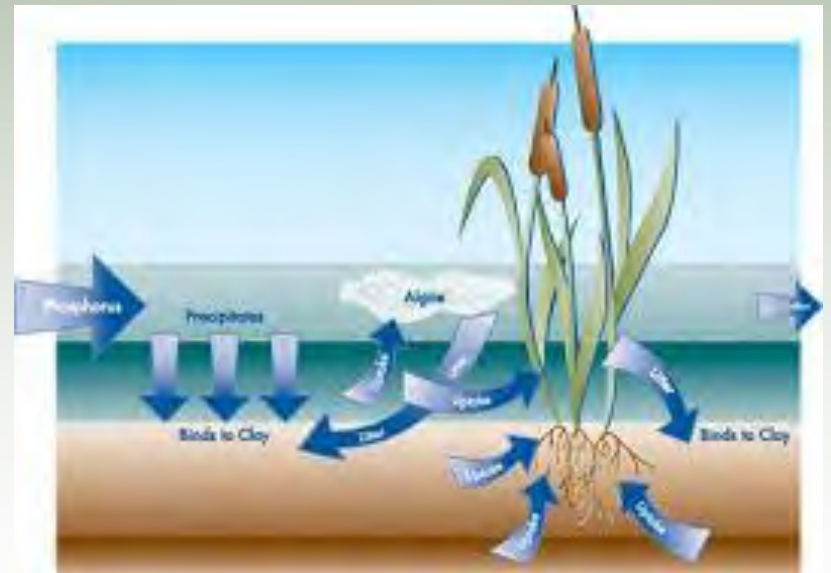


# Phosphorus

- Because of this, Phosphorus was put on the front burner
- Algae and algae blooms love phosphorus

# Phosphorus Removal

- Municipal
  - Public Owned Treatment Works
- Industrial
  - Pretreatment Permit
  - NPDES Permits





# Why Phosphorus Removal?

- Nutrient related pollutant
- Fertilizer to algae in streams
- Inhibits sunlight
  - Photosynthesis
- Small plant life does not grow

# Where Does Household Phosphorus Come From?

- Cleaners and degreasers
- Food products
- Fertilizers
  - Household
  - Farms



# Where Does Industrial Phosphorus Come From?

- Zinc phosphate coatings
- Nickel plating
- Industrial strength detergents
- Paints and coatings



# Municipal Treatment Schemes

- Biological treatment process
- Chemical precipitation process
  - Calcium based coagulant
  - Aluminum based coagulants
  - Iron based coagulants

# Facts to Consider

- Most industries can not run biological treatment
- Industry must coagulate-flocculate-precipitate
- Food processing plants do run biological processes
- Municipal systems may do both processes
- Industry local POTW and EPA must work together
- As permits expire, new permits address phosphorus



Questions?



