

1 Problem

What	Problem(s)	400,000 people told not to drink their tap water, toxic algae bloom, tap water contaminated
When	Date	Beginning August 1, 2014
	Different, unusual, unique	Large algae bloom
Where	Facility, site	Toledo, OH
	Unit, area, equipment	Water treatment plants on Lake Erie
	Task being performed	Processing water for public use

Impact to the Goals		
Safety	Potential for vomiting, cramps, rashes and liver damage	
Environmental	Toxic algae bloom formed in Lake Erie	
Customer Service	400,000 told not to use water	
Regulatory	Limited regulation of phosphorus use	
Production/ Schedule	Tap water unable to be used for 2 days	
Labor/ Time	Investigation/recovery effort required	

TOLEDO WATER BAN

Cause Map

Toxic Algae Bloom Makes Water Unsafe

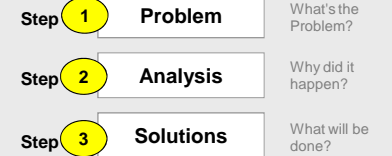
On the evening of August 1, 2014, 400,000 people living in the Toledo, Ohio region were told not to use or consume tap water. The water ban was imposed after higher levels of a toxin, microcystin, than were deemed safe were detected in the water supply. The water ban was lifted on the morning of August 4, but the issue may not be over since many of the factors that lead to the problem are still present.



Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.

CAUSE MAPPING

Problem Solving • Incident Investigation • Root Cause Analysis

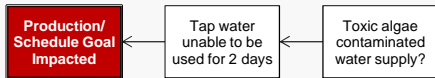


NASA satellite photos of Lake Erie on August 3, 2014
Full images available at
<http://earthobservatory.nasa.gov/IOTD/view.php?id=84125&src=eorss-iotd>

2 Analysis

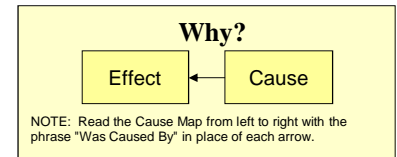
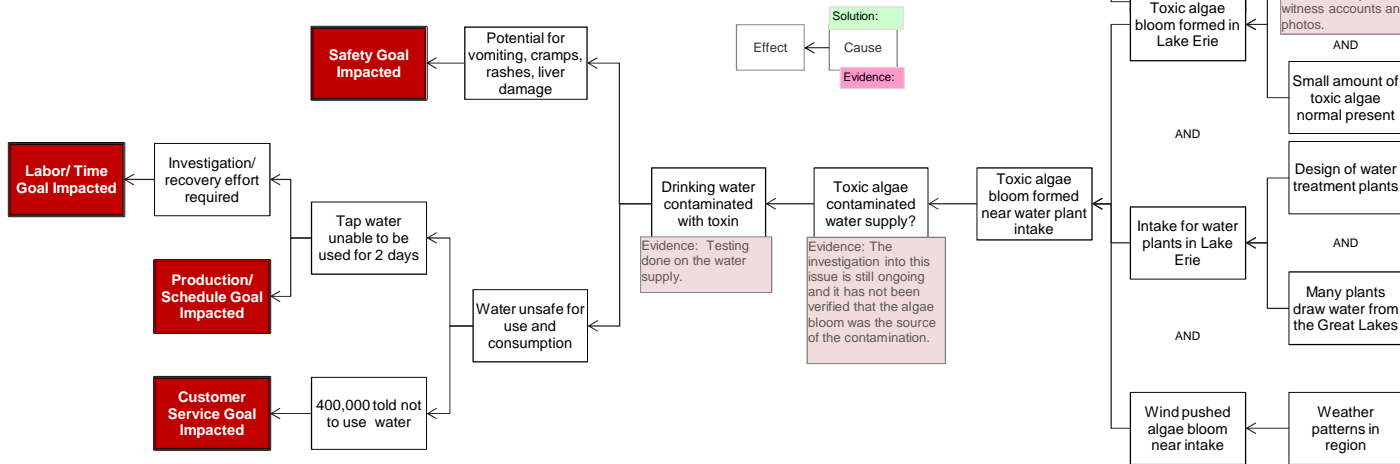
Basic Level Cause Map - Start with simple Why questions.

Basic Cause-and-Effect



Algae are always present in Lake Erie and they can reproduce rapidly and may form a bloom when conditions are conducive to growth and there is high nutrient availability. Scientists are still working to understand more about the algae blooms, but many believe that agricultural runoff is the main source feeding them. Phosphorus is commonly used in fertilizer and rain washes it into the lake where it may be consumed by algae.

More Detailed Cause Map - Add detail as information becomes available.



For a free copy of our Root Cause Analysis Template in Microsoft Excel, used to create this page, visit our web site.

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