Microcystin Surveillance Study of Iowa's Public Water Supply Systems

July 11, 2016 – June 26, 2017

Report of Findings

Photo: USGS, Microcystis bloom near shore at Rock Creek Lake, Jasper County, Iowa

June 2018

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Executive Summary

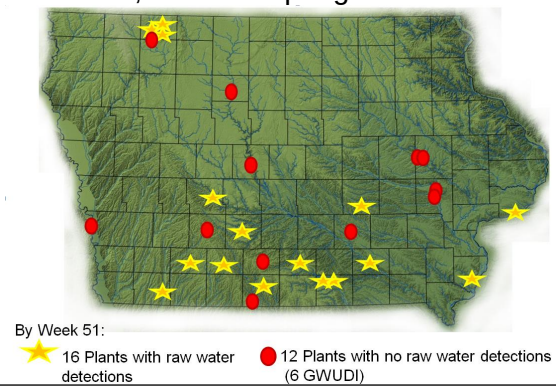
In 2016, the U.S. Environmental Protection Agency set health advisory levels in public drinking water systems for microcystin, a toxin produced by cyanobacteria. This study was initiated to evaluate microcystin in Iowa's public drinking water systems that used surface water or influenced groundwater sources. The purpose of the project was two-fold:

- Determine the microcystin levels in the raw water of Iowa's surface water (SW) and influenced groundwater (IGW) public water supply systems during a year's time.
- If total microcystin was found at levels above the detection level in the source water, determine whether the system's treatment process was effective in toxin removal by sampling the finished water.

Using funds from the Drinking Water State Revolving Fund's Source Water Set-aside, the Iowa Department of Natural Resources (DNR) contracted with the State Hygienic Lab at the University of Iowa in Coralville (SHL) to provide analytical services to Iowa SW and IGW systems that voluntarily participated in the year-long study of microcystin levels in their source water. The system's staff collected the samples. The cost of shipping and return of the sampling kits to SHL was included in the study.

There were 28 treatment plants at the 26 community public water supply systems that participated in the project, with the project duration of 51 weeks. Of the 28 plants, 22 were surface water (SW) sources and 6 were influenced groundwater (IGW) sources during the project. Raw water samples were collected each Monday, with the first week of sampling starting on July 11, 2016 (Week 1). If total microcystin was detected, additional raw and finished water samples were collected. The participating systems are shown below on the map.

- There was no confirmed detection of total microcystin in finished (treated) drinking water.
- Fifteen of the 26 systems had at least one sample above the detection limit of 0.3 µg/L total microcystin in the raw water.
- There was at least one microcystin detection in raw water somewhere in the state during 27 weeks of the 51 week project. The last detection for 2016 was on December 27, week 25, and the first detection for 2017 was May 2, week 43.
- The peak week for detection was at 10 systems during the week of October 24th.
- The highest raw water concentration exceeded 5 µg/L total microcystin.
- There was no detection in raw water of total microcystin in the six IGW plants (five systems) during the project. Iowa City has the capability for surface water, too, but only used IGW sources during this project; the surface water intake was not used.
- There were some challenges with the analytical method, with both reproducibility and replicating results at various dilutions.
- Weather is known to play a role in microcystin production; during this period, it was a wet summer; warm fall and winter; and cool spring.



Systems participating in the surveillance project

Background

What are Cyanobacteria?

Cyanobacteria (also called blue-green algae) are photosynthetic bacteria that share some properties with algae. Cyanobacteria are found naturally in all surface waters, both freshwater and marine, and have been a part of the environment for over a billion years. There are several types of cyanobacteria, some of which can generate one or more chemicals that are toxic to humans and animals. These chemicals are called cyanotoxins. When conditions are favorable, cyanobacteria can rapidly multiply and cause algal blooms. Cyanotoxins, specifically microcystin, were the cause of the "Do Not Use" water event in Toledo, Ohio, for several days in August 2014.

Under conditions that are not fully understood but involve light and nutrients, some types of cyanobacteria can form toxins, which are called cyanotoxins. Toxin-producing cyanobacteria in the Midwest are typically seen in early summer and late summer. Both toxic and non-toxic varieties of the most common cyanobacteria can be present at the same time. It is impossible to tell if a species is producing toxin or not by appearance alone.

Factors that affect cyanobacterial bloom formation and persistence include:

- Light intensity and total sunlight duration: stronger light and longer duration
- Nutrient availability (both nitrogen and phosphorus)
- Water temperature: warmer temperatures, in the range of 60°F (15.6°C) – 80°F (26.7°C)

Cyanotoxins can be harmful to human health, the environment, and animals. In humans, symptoms include skin rashes, nausea, diarrhea, fatigue, and can cause toxic effects to the nervous system, liver, and kidneys. Decay of the algae bloom consumes oxygen that could cause die-off of fish. Effects can be seen within minutes to days after exposure, depending upon toxin type and concentration. Exposures from recreational water include direct contact, ingestion, and inhalation from aerosol droplets. Animals, particularly dogs, can have a more rapid and greater exposure from licking cyanobacteria off of their fur.

Intracellular and Extracellular Cyanotoxin

The toxins can be held within the cell walls (intracellular), similar to water inside a water balloon. When the cell walls rupture, or lyse, then the toxin is released outside the cell walls (extracellular). Causes of extracellular release include use of a strong oxidant or aquatic herbicide that breaks open the cells, and also natural death of the cyanobacteria. Some types of cyanobacteria also release toxin when the bacteria are still alive.

In water treatment, it is much easier to remove the whole cell intact rather than to remove the released toxin.

Drinking Water Health Advisories

In 2015, EPA issued 10-day health advisory levels for two cyanotoxins in finished (treated) drinking water: microcystin and cylindrospermopsin. These are non-regulatory levels that public water supply systems which voluntarily monitor for the two cyanotoxins can use to interpret the results. The microcystin health advisories are listed on the following page.

Microcystin is included in the upcoming federal Unregulated Contaminant Monitoring Rule #4, which will be conducted from 2018 – 2020. This rule requires specific PWS to monitor for contaminants which are not currently regulated, but are suspected of causing adverse human health effects. The rule is used to determine the national occurrence of a contaminant, at what levels the contaminant is found, and whether there is a need for a national primary drinking

water regulation. Under the UCMR4 in Iowa, all of the SW/IGW systems serving at least 10,000 people will collect microcystin samples over a year-long period, as will a few smaller systems.

The DNR has conducted an ambient water monitoring program for many years at state park swimming beaches during the recreational season, collecting total microcystin data since 2006.

Microcystin

Microcystin and health effects

Microcystin is the toxin produced at times by certain strains of blue-green algae: *Microcystis, Anabaena, Planktothrix,* and *Anabaenopsis*. There are more than 200 known variants (called congeners) of microcystin.

The liver is the primary human organ affected, with the following possible acute health effects: abdominal pain, vomiting and diarrhea, liver inflammation and hemorrhage, acute pneumonia, acute dermatitis, kidney damage, and potential tumor growth promotion.

Microcystin Health Advisories

The U.S. Environmental Protection Agency (EPA) sets Health Advisories (HAs), which are non-regulatory guidance for contaminants found in drinking water but that are not regulated, to assist federal, state, and local officials, and public water systems in protecting public health. The HAs are concentrations at which adverse health effects are not anticipated to occur over specific exposure durations: one-day, ten-day, or a lifetime.

The EPA set two 10-day drinking water health advisories for total microcystins:

- 0.3 µg/L for bottle-fed infants, children five years and under, and pregnant women
- 1.6 µg/L for children six years to adult

Microcystin Surveillance Study

The purpose of the project was two-fold:

- Determine the microcystin levels in the raw water of Iowa's surface water (SW) and influenced groundwater (IGW) public water supply systems during a year's time
- If total microcystin was found at levels above the detection level in the source water, determine whether the system's treatment process was effective in toxin removal by sampling the finished water.

The project involved collection of a weekly raw water sample on Monday at each participating system's water treatment plant(s) by the system's staff, shipment to the SHL in Coralville where sample analysis was conducted for total microcystin using ELISA method. The sample collection point was prior to any treatment or filter backwash recycle, and was the same location for each treatment plant as was used under the federal Long-term 2 Enhanced Surface Water Treatment Rule for source water sampling.

The raw water sample analytical results were available on Wednesday afternoons. Depending upon the levels of microcystin found in the raw water during the weekly sample, additional sampling was requested at the raw and finished water locations in the system at increased frequencies according to the flow chart in Appendix D. If the finished water microcystin levels exceed the threshold levels, the system was required to issue a public notice.

Initial Project Activities

Letters were sent in March 2016 to all surface water and influenced groundwater systems, to determine their interest in participating in the project. Due to the response, the DNR proceeded into a contract with the SHL for the shipping and analytical services, which was approved on May 17,

2016, by the DNR's Environmental Protection Commission. Letters were sent on May 20, 2016 to each system with an Agreement to Participate (see Appendix B). Systems returned those agreements (see Appendix C). A teleconference was held on June 30th to answer questions from the participating systems. Sampling started on July 11, 2016. The participating systems are listed in the following table:

PWSID	PWS Name	Source Classification: Surface Water (SW) or Influenced Groundwater (IGW)
IA2909053	Burlington Municipal Waterworks	SW
IA5715093	Cedar Rapids Water Department (2 plants)	IGW
IA3000099	Central Water System	SW
IA5903011	Chariton Municipal Water Works	SW
IA7329029	Clarinda Water Plant	SW
IA0220075	Corning Municipal Water Supply	SW
IA7820080	Council Bluffs Water Works	SW
IA8816089	Creston Water Supply	SW
IA0140007	Greenfield Municipal Utilities	SW
IA4641064	Humboldt Municipal Water Department	IGW
IA5225079	Iowa City Water Department	IGW during this project; SW intake was unused
IA8222001	Iowa-American Davenport	SW
IA2740050	Lamoni Municipal Utilities	SW
IA2742076	Leon Water Supply	SW
IA0848015	Madrid Water Department	IGW
IA3050079	Milford Municipal Utilities	SW
IA7950097	Montezuma Municipal Water Supply	SW
IA2038038	Osceola Water Works	SW
IA6273005	Oskaloosa Municipal Water Dept.	IGW
IA9083012	Ottumwa Water Works	SW
IA3971026	Panora Water Works	SW
IA0400900	Rathbun Regional Water Assn. (2 plants)	SW
IA3070078	Spirit Lake Waterworks	SW
IA5225101	University Water System (Univ. of Iowa)	SW
IA3087057	Wahpeton Water Supply	SW
IA6171029	Winterset Municipal Waterworks	SW

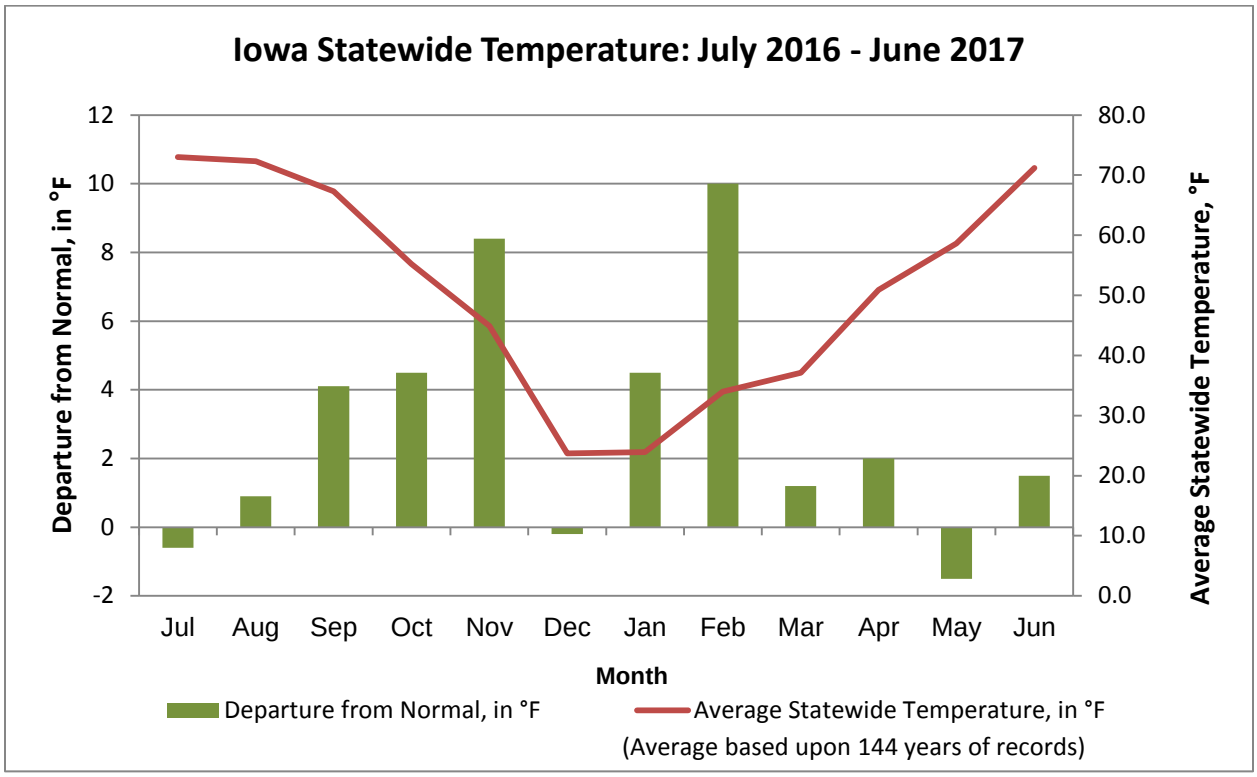
Participation in the program was voluntary. Des Moines Water Works, which is comprised of three SW treatment plants, had an existing cyanotoxin surveillance program that was active during the project period, and so did not participate in this project. Three other systems also did not participate. Two systems, Madrid Water Department and Clarinda Water Plant, were able to participate for a portion of the year but not for the entire project period.

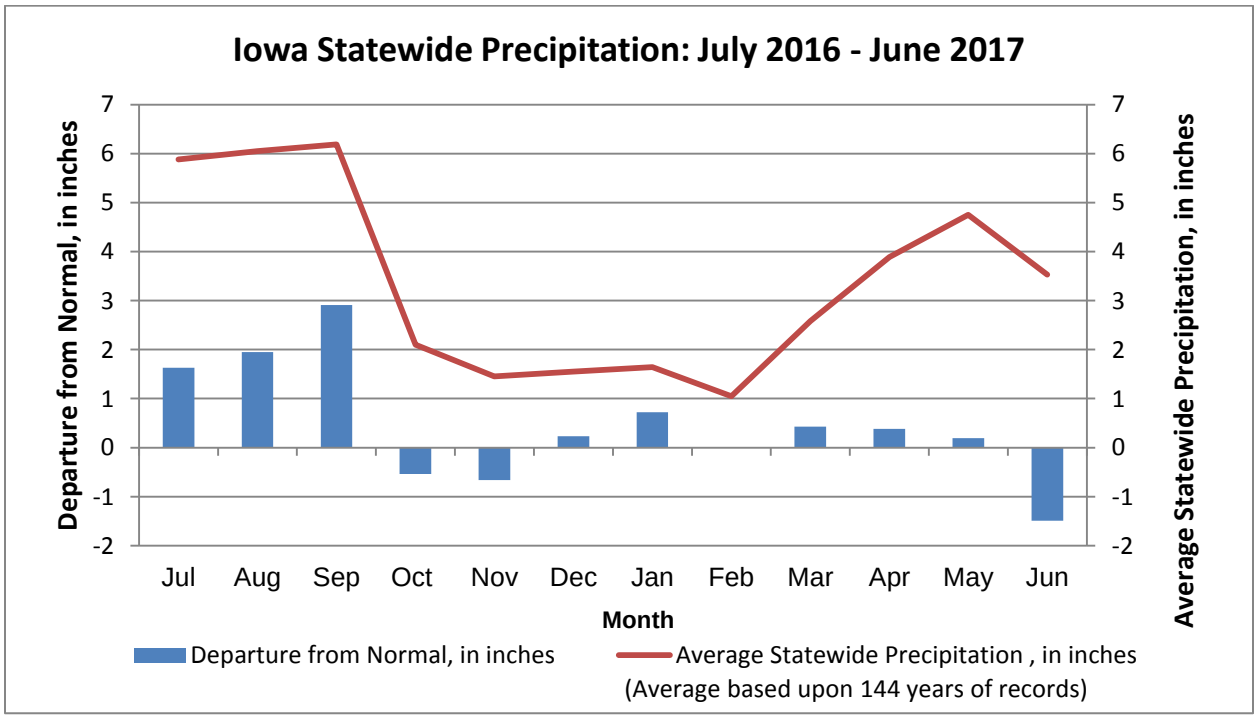
Microcystin flow chart and public notification templates

The project flow chart for microcystin is shown in Appendix D. The flow chart lists the actions expected of the system at the various microcystin levels in the raw (untreated) water or finished (treated) water. The public notification templates are listed in Appendices E – H.

Weather during study period

Shown below are the statewide summaries of monthly temperature and precipitation during the sampling period compared with the normal (average) levels from 144 years of weather records. The Monthly Weather Summaries were obtained from the Iowa Department of Agriculture and Land Stewardship's Climatology webpage at www.iowaagriculture.gov/climatology.asp for the project period.





Methodology

Measuring Microcystin

Microcystin is the most commonly studied cyanotoxin and there were a few different methods for analysis that were reviewed for use in this project. The laboratory Enzyme Linked Immunosorbent Assay (ELISA) test that measures total microcystin was chosen due to its detection limit (0.3 µg/L), relatively simple analysis, and cost. There is a field ELISA test kit that measures total microcystin that was not chosen due to its detection limit of 0.1 – 1 µg/L, which was above the health advisory level. There is also a high pressure liquid chromatography/mass spectrometry method (HPLC/MS-MS) that can achieve a detection limit of 0.02 µg/L, but it only looks for six congeners instead of total microcystin, takes longer for the analysis, and is significantly more expensive than the lab ELISA test.

Field parameters

The water operators collected onsite data using their instrumentation for turbidity, pH, and temperature. That data was reported on the chain of custody form to the laboratory, which provided it to DNR.

Discussion and Graphical Presentation of the Data

The analytical data is shown in Appendix K and includes the laboratory microcystin result and the field parameters of pH, turbidity, and temperature. The laboratory data is also housed in the Safe Drinking Water Information System (SDWIS) by the PWS identification number.

Analytical results for the raw water samples collected at each treatment plant are graphically presented in Appendix A, alphabetically by system. The microcystin analytical data and field pH data are depicted on the secondary (right side) y-axis, and the turbidity and temperature data are on the primary (left side) y-axis, over time on the x-axis. There was no confirmed detection of microcystin in the finished water of any plant; therefore, there are no charts of finished water data presented in this report.

There were three systems located on the same waterbody, West Lake Okoboji: Central, Milford, and Wahpeton. The systems are located on three sides of the lake.

The Spirit Lake treatment plant is located on Big Spirit Lake, which is adjacent to West Lake Okoboji. According to the DNR's lake inventory information, the morphology of these two natural lakes is different. Big Spirit is relatively shallow at 24 feet maximum depth and covers 5,684 acres. In comparison, West Lake Okoboji is deep (134 feet maximum depth) and covers 3,847 acres. During the study, total microcystins were detected most frequently and at the highest level in Big Spirit Lake. The Spirit Lake treatment plant is also the single plant in the state that currently uses ozone in its treatment train, which is a preferred treatment option for cyanotoxins.

Four systems have multiple sources, either used frequently together (Corning), or alternated during specific periods or seasons of the year (Chariton, Creston, and Lamoni).

One of the systems with two plants, Rathbun Regional Water Association, has a treatment plant with an intake in the reservoir at a depth of 10 feet from the bottom of the reservoir, and another plant with its source intake in the Chariton River located just below the reservoir. The reservoir discharge is near the bottom of the reservoir and the two locations provided a unique opportunity to evaluate essentially the same water from the reservoir before and after its release.

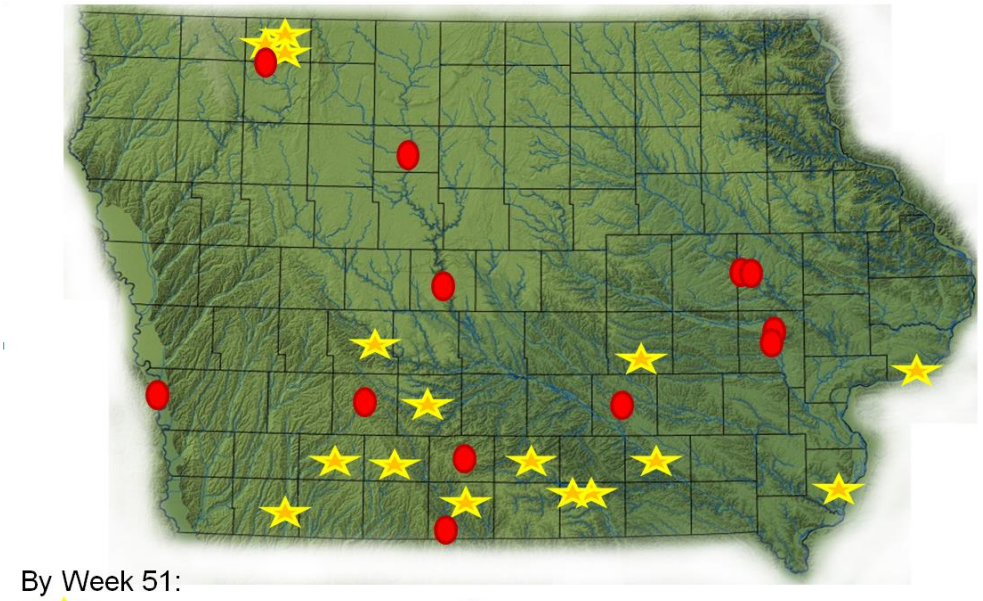
Two systems were on the Mississippi River. The Davenport plant is north of the Burlington plant and its intake is on the main river channel. Burlington's intake is on one of the more narrow channels, but still with significant flow rates.

Clarinda is the single plant in the study that uses pre-sedimentation basins with no chemical addition. The microcystin samples were collected at that location, which accounts for the lower turbidity levels than might typically be expected from the Nodaway River. The Council Bluffs – Narrows Plant, located on the Missouri River, had no microcystin detection and some of the highest turbidity levels.

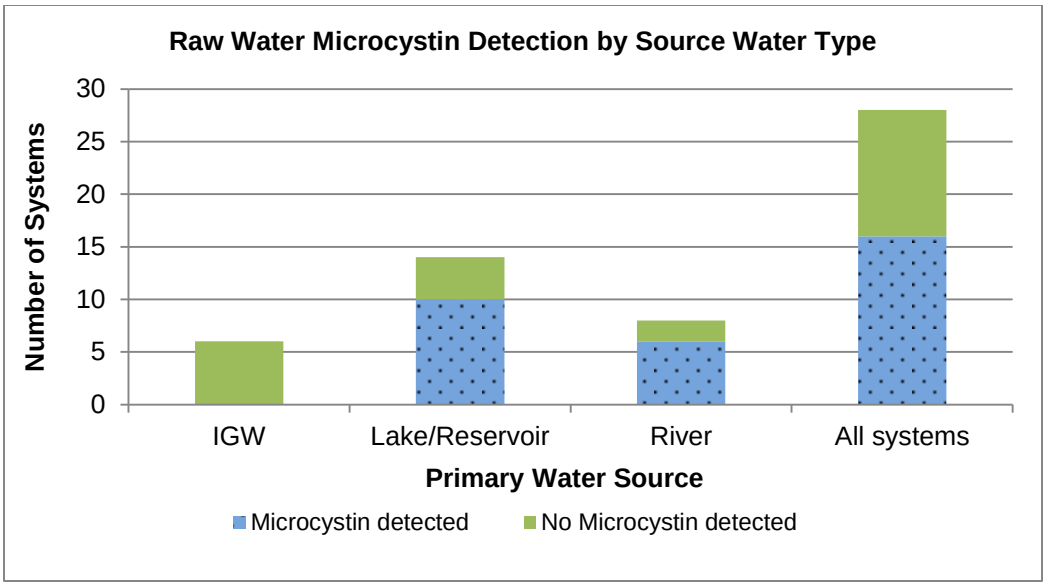
Findings

The project was ended after the 51st week by the DNR. There were 28 plants at 26 community public water supply systems that participated in the project. Of the 28 plants, 22 were surface water sources and six were influenced groundwater sources. One system was classified as IGW for this study because its surface water intake was not used during the study period. The participating systems are shown below on the map.

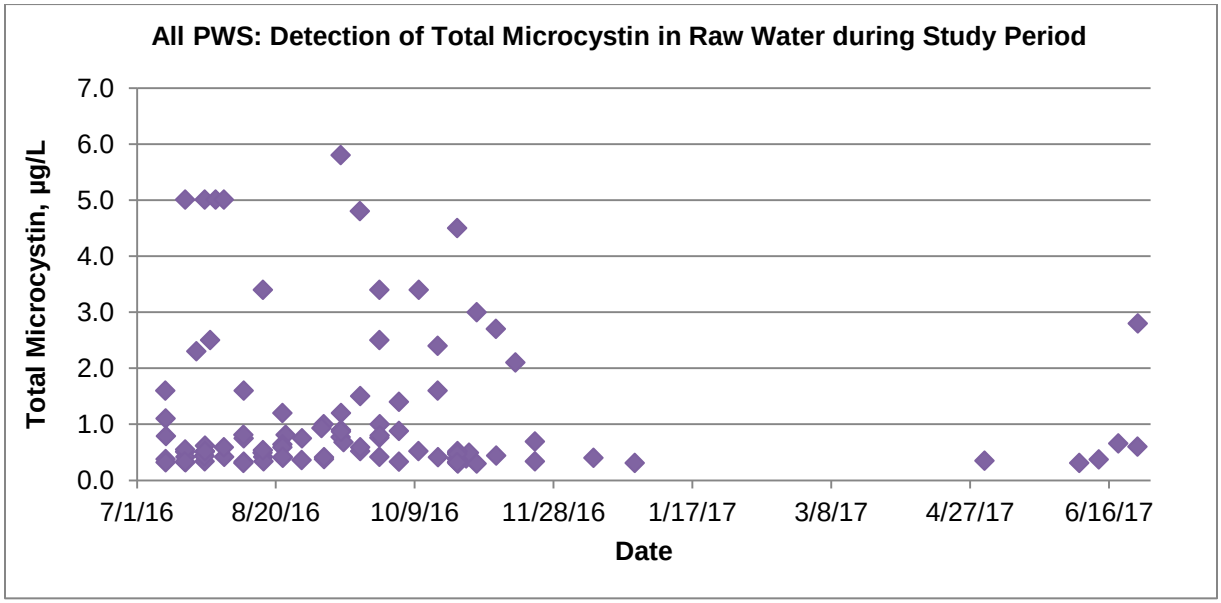
- There was no confirmed detection of total microcystin in finished water during this project.
  - All of the systems have treatment which includes filtration.
    - Most of the systems have conventional filtration (flocculation and sedimentation followed by filtration).
    - A few of the systems had membrane filtration.
    - Many systems have granular activated carbon (GAC) as part of their filter media.
    - Some systems have the ability to add powdered activated carbon (PAC).
    - One system (Spirit Lake) also has ozone treatment.

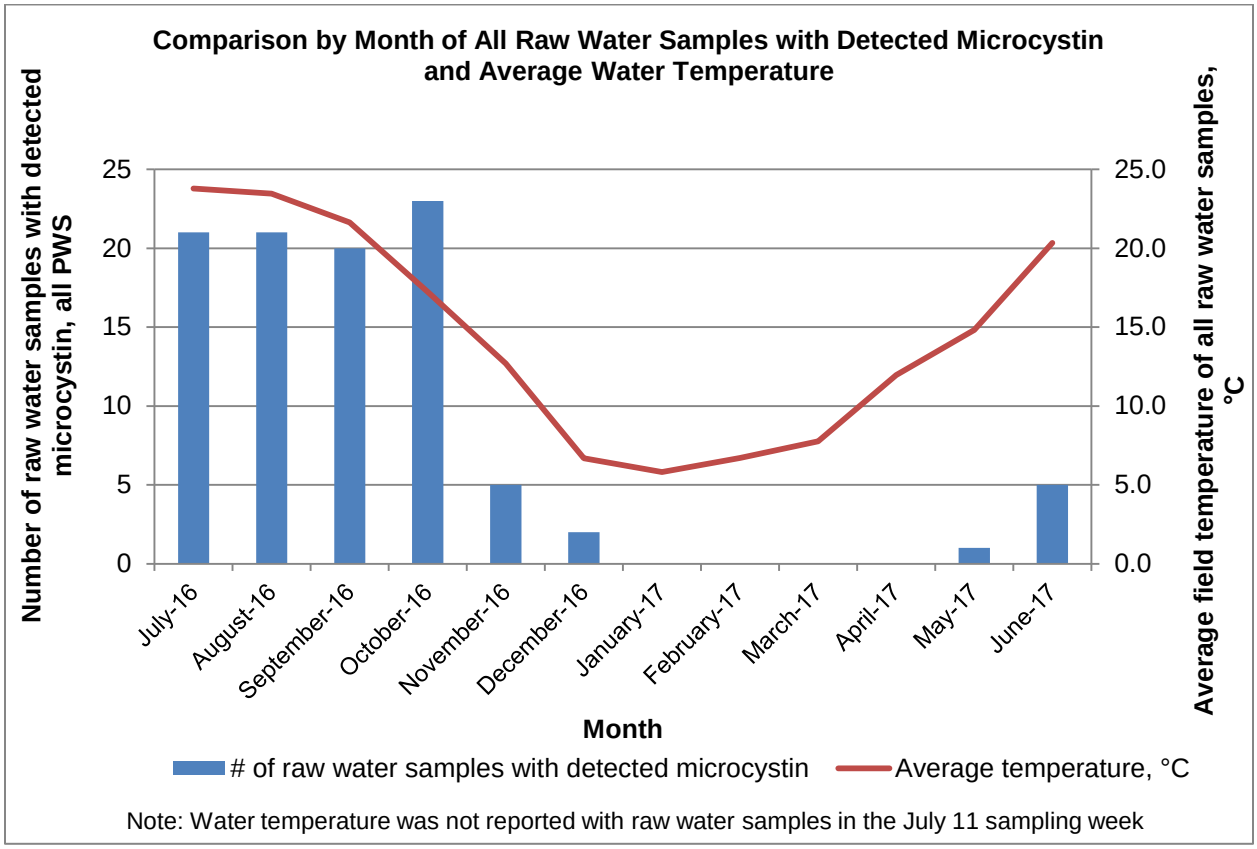


Systems participating in the surveillance project



- 15 of the 26 systems had at least one sample above 0.3 µg/L total microcystin in the raw water.
- At least one detection in raw water somewhere in the state occurred during 27 weeks of the 51 weeks in the project.
  - The last detection for 2016 was on December 27, week 25 (at detection level).
  - The first detection for 2017 was May 2, week 43 (at detection level).
- The peak week for detection was at 10 systems during the week of October 24.
- The highest raw water concentration exceeded 5 µg/L total microcystin.
- There was no detection in raw water of total microcystin in the six IGW plants (five systems) during the project.
- There were some challenges with the analytical method, with both reproducibility and replicating results at various dilutions.





Lessons Learned

The analytical data are shown in Appendix J. The system's operator recorded where the sample was collected in descriptive language under "Sampling Identification," used identification codes for the location, and used other codes for the water type (finished or raw). There were several instances where codes were confused, although it was possible to differentiate finished water from raw water based upon another description or the turbidity results. Interpretation of handwriting was a complicating factor at times, too. All of the data confusions were resolved.

Systems with multiple sources feeding one treatment plant were not accounted for separately in the study; whichever source or sources were in use on the sample collection day were the source(s) sampled.

Laboratory Quality Assurance/Quality Control

Calibration: The standard concentrations used to determine the curve were 0.00, 0.15, 0.40, 1.0, 2.0, and 5.0 µg/L. Two standards were analyzed with each set of samples: (1) a Quality Control Standard/Positive Control, which was a mid-level standard of 0.75 µg/L made from a different source than the calibration standards, and (2) a Low Calibration Range Check Standard, which was a 0.40 µg/L standard prepared from the same source as the calibration standards. A laboratory reagent blank was also analyzed with each set of samples.

The daily QC Standard/Positive Control fell within the 75-125% recovery range except for five instances where it was slightly above or below that range. The mean recovery was 100% during the first half of the sampling period compared to 106% during the second half of the sampling period.

The daily Low Calibration Range Check Standard was more variable. The recoveries were all in the range of 60 – 136% recovery, with a mean recovery of 98% in both halves of the study. There were two low recoveries of 45% and 46%, which achieved recoveries of 61% and 60% when re-analyzed. When the quality control samples had low recoveries, the laboratory re-analyzed the source water samples in that batch.

The daily laboratory reagent blank was always less than 0.050 µg/L, and typically between 0.000 and 0.025 µg/L.

Two samples were run in duplicate with each batch of samples, and most results had good agreement, particularly at low to non-detect levels. The average absolute difference was 0.05 µg/L and the average relative percent difference was 50.7%. The relative percent difference was not useful with this data, as the difference between a non-detect and 0.01 µg/L was 200%.

Summary

The study demonstrates that Iowa does have the potential for microcystin occurrence in its source water over all regions of the state. Lower microcystin levels were found in this study as compared to historical results of the DNR's state park swimming beach ambient water monitoring data, which have exceeded total microcystin levels of 20 µg/L at times. There was no location where samples were collected for both the DNR beach monitoring program and this study during the study period. This was only a one year project. Temperature and precipitation are known factors in cyanobacteria formation, and the weather during another period could yield different results. Warmer water temperatures and drier conditions in the summer and fall following a wet spring appear to yield elevated cyanobacteria levels in Midwestern waters. During the study period, as compared to the average, it was a wet summer, warm fall and winter, and cool spring.

Influenced groundwater systems had much less likelihood of detecting microcystin in their source waters than did systems that use surface water directly from a reservoir, lake, or river; no microcystin was detected in the source water at participating IGW systems.

The treatment processes at the plants with detected microcystin were sufficient to remove the toxin during the study; there was no confirmed detection of microcystin in finished water. All surface water and influenced groundwater systems in Iowa have filtration followed by disinfection.

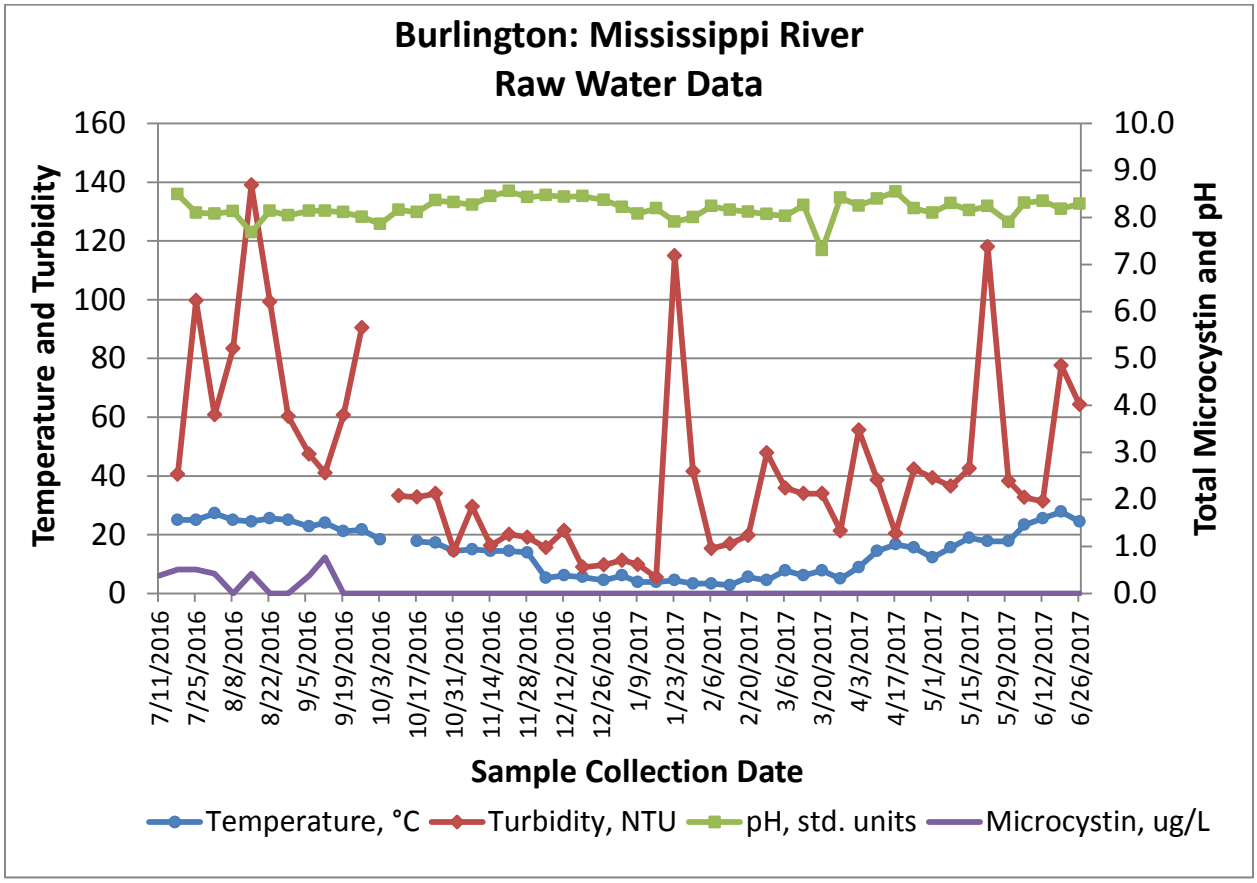
The analytical method could use improvement. The detection limit of 0.3 µg/L is the same as the sensitive population health advisory level. Because the test range is limited (0.3 to 5.0 µg/L), dilution was needed on some samples. Replication of analytical results was an issue when multiple dilutions were used. A wider test range is desirable, capturing concentrations of 0.1 to 20.0 µg/L without dilution.

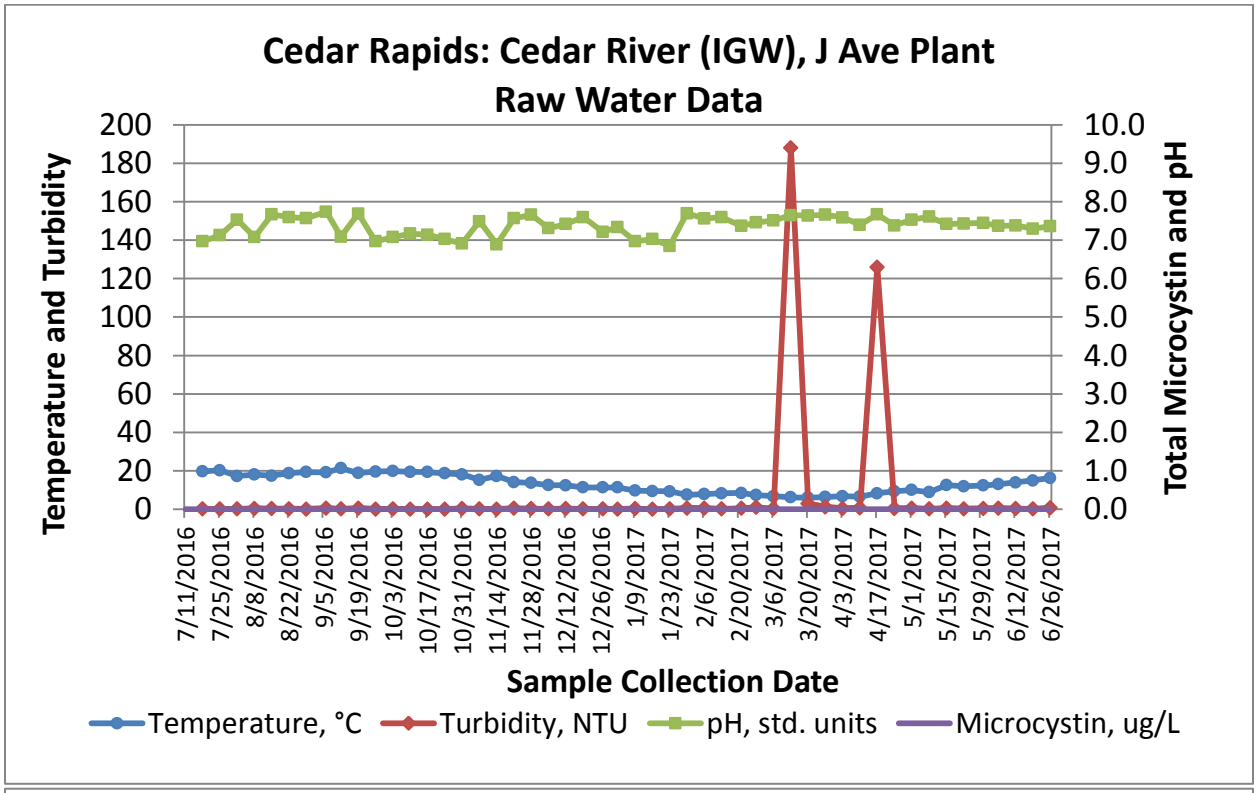
References

- Ohio EPA's Harmful Algal Bloom webpage, including Public Water System HAB Response Strategy: http://www.epa.state.oh.us/ddagw/HAB.aspx
- U.S. EPA's Drinking Water Health Advisory website: https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisory-documents-cyanobacterial-toxins
- U.S. EPA's Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water: https://www.epa.gov/ground-water-and-drinking-water/recommendations-public-water-systems-manage-cyanotoxins-drinking
- U.S. EPA's Water Treatment Optimization for Cyanotoxins: https://www.epa.gov/ground-water-and-drinking-water/water-treatment-optimization-cyanotoxins

Appendix A: Raw Water Data Graphs

The graph for each system is listed alphabetically by name of system, with the water source listed. All data shown is raw water data. Field parameters of temperature, turbidity, and pH were collected on-site by the water operator when the microcystin sample was collected. Temperature and turbidity are on the primary y-axis (left side); total microcystin and pH are on the secondary y-axis (right side).




Cedar Rapids: Cedar River (IGW), J Ave Plant
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
200
180
160
140
120
100
80
60
40
20
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
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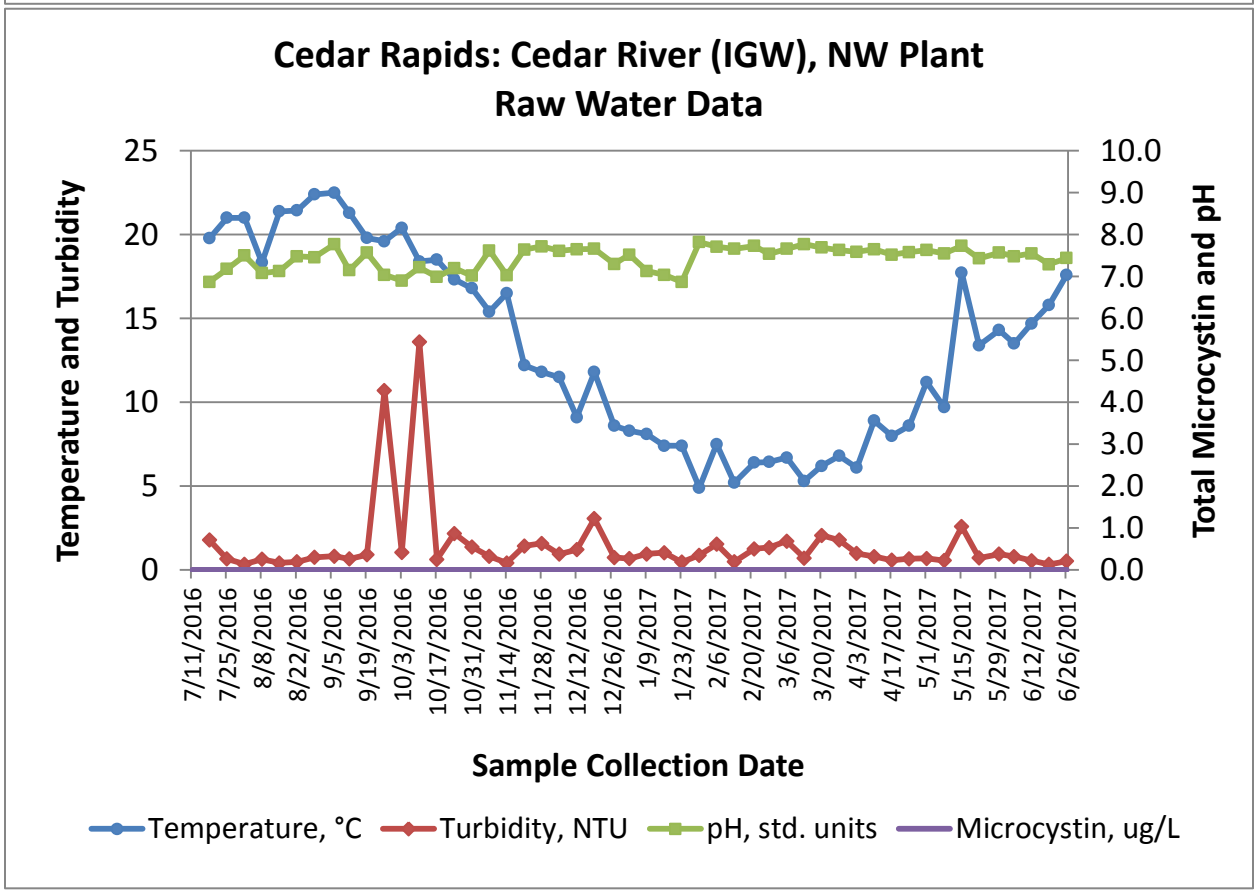
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L


Cedar Rapids: Cedar River (IGW), NW Plant
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
25
20
15
10
5
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
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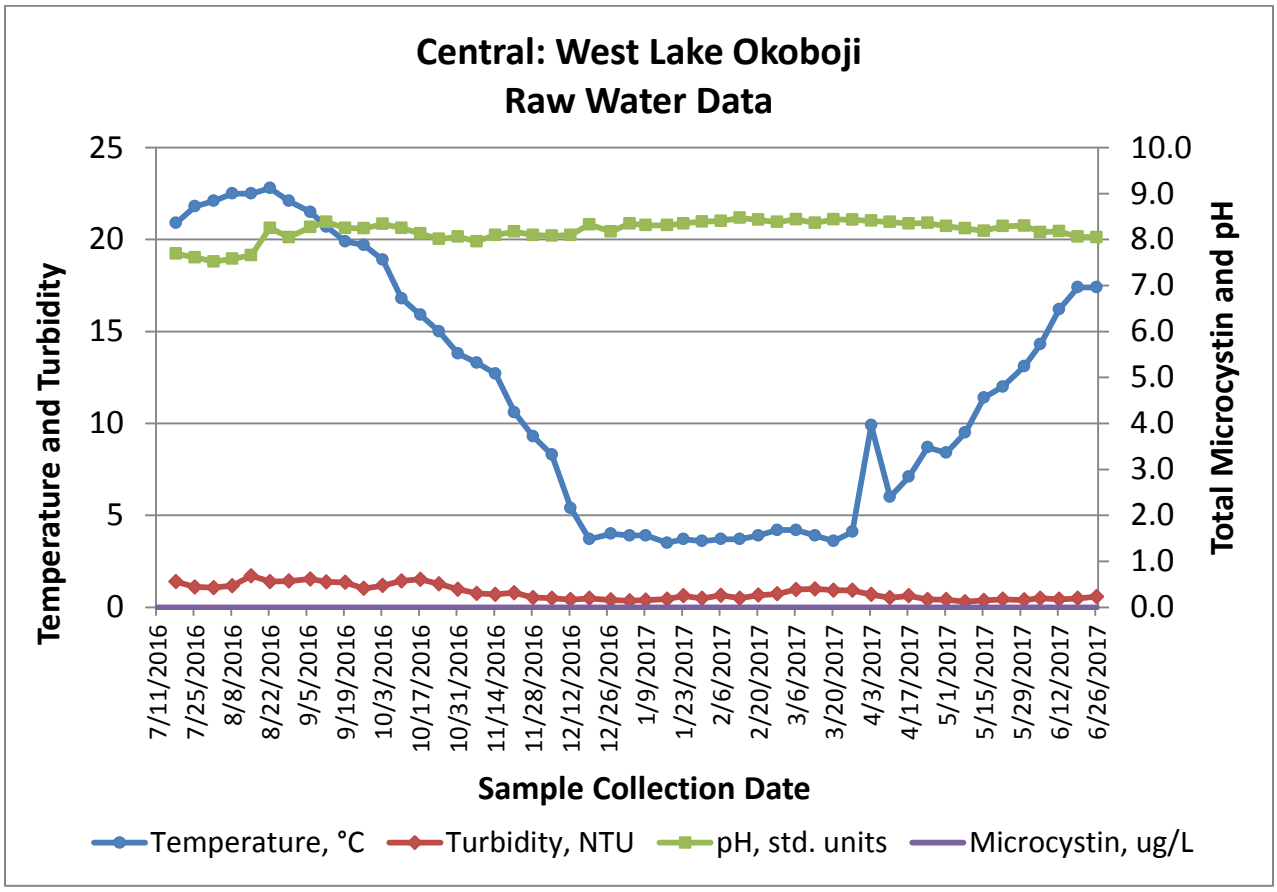
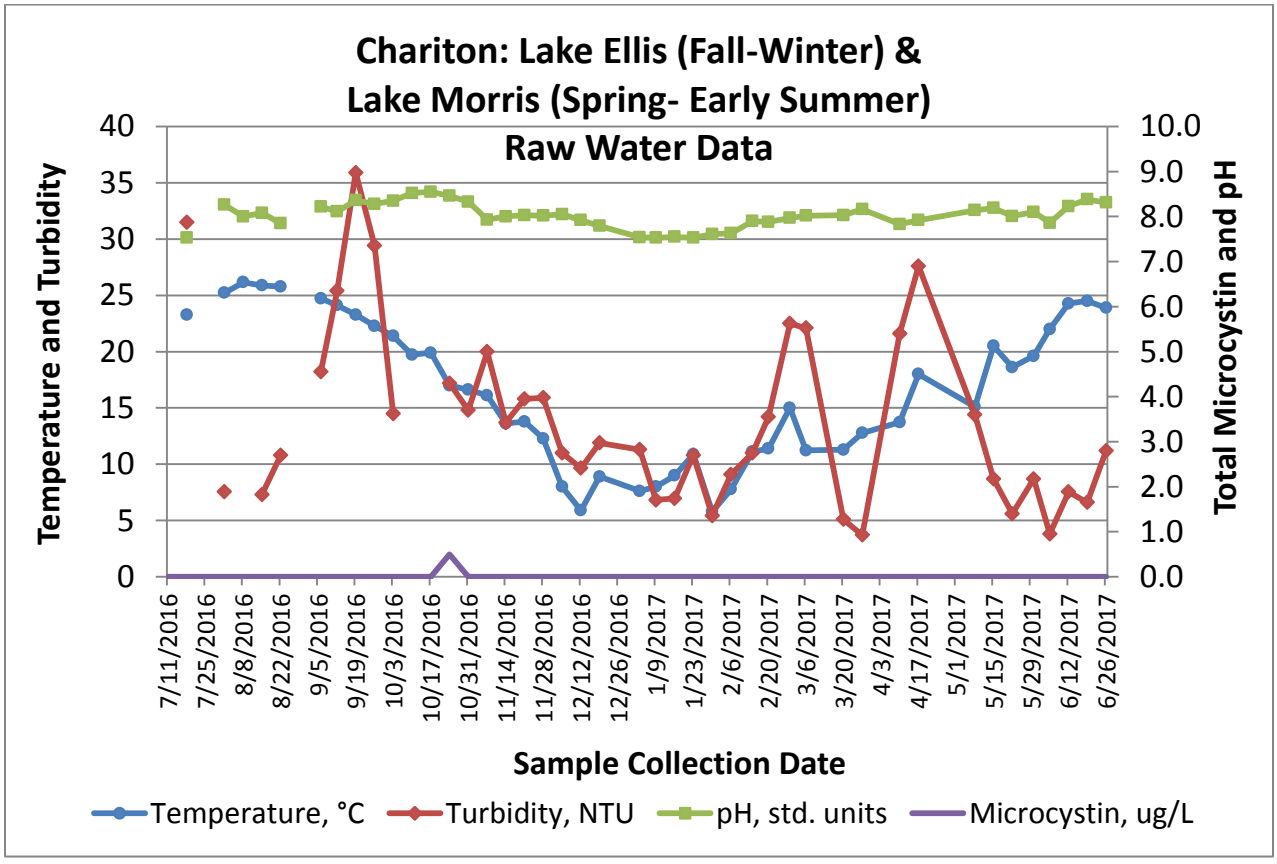
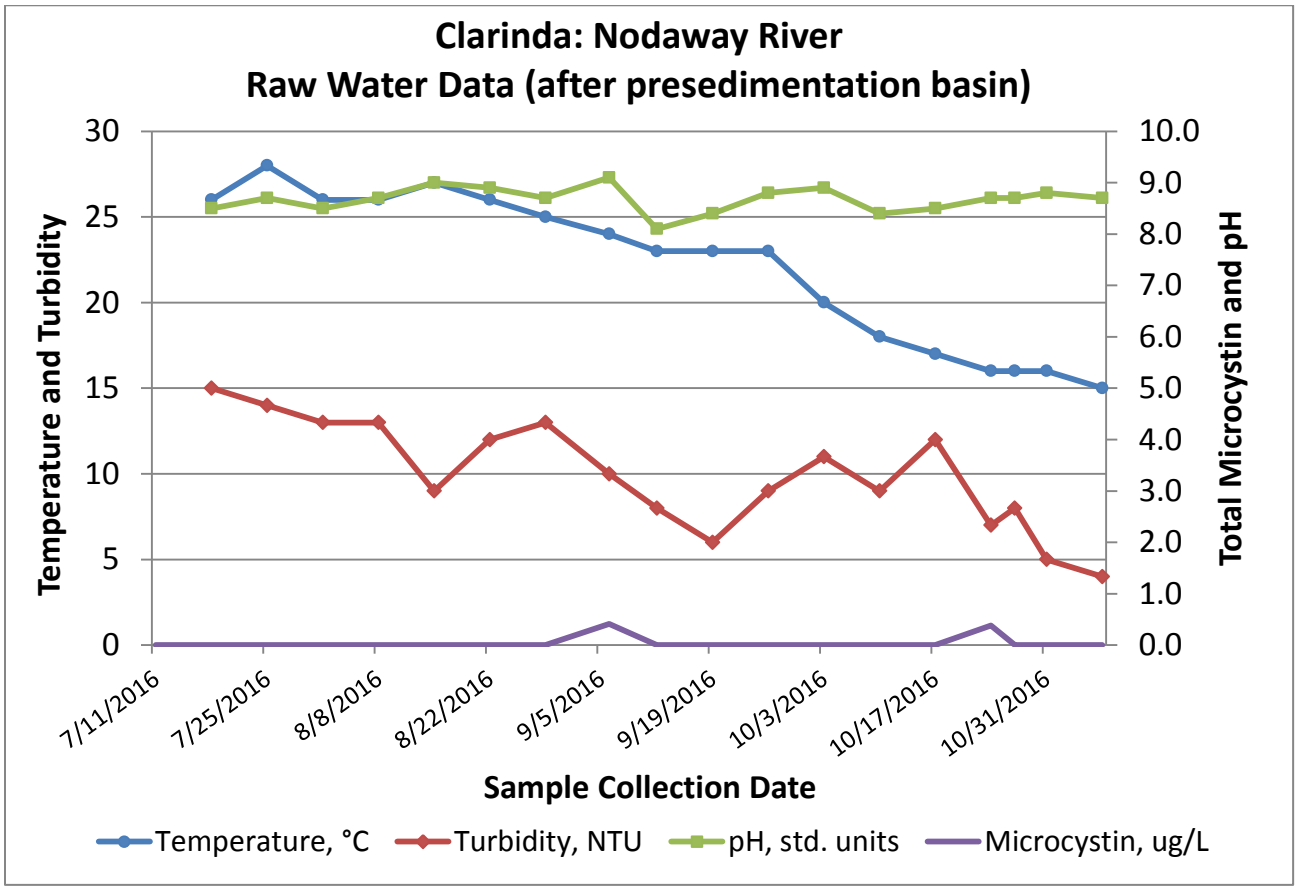
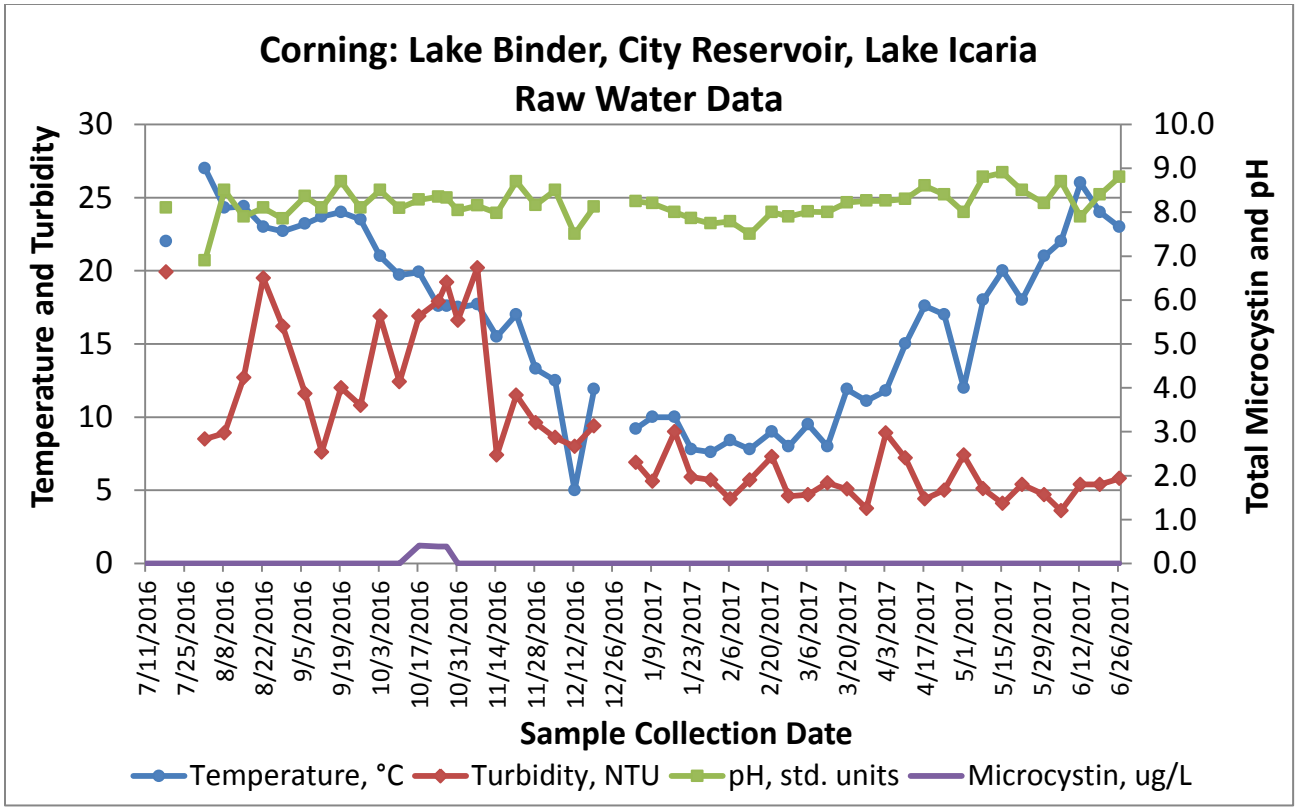
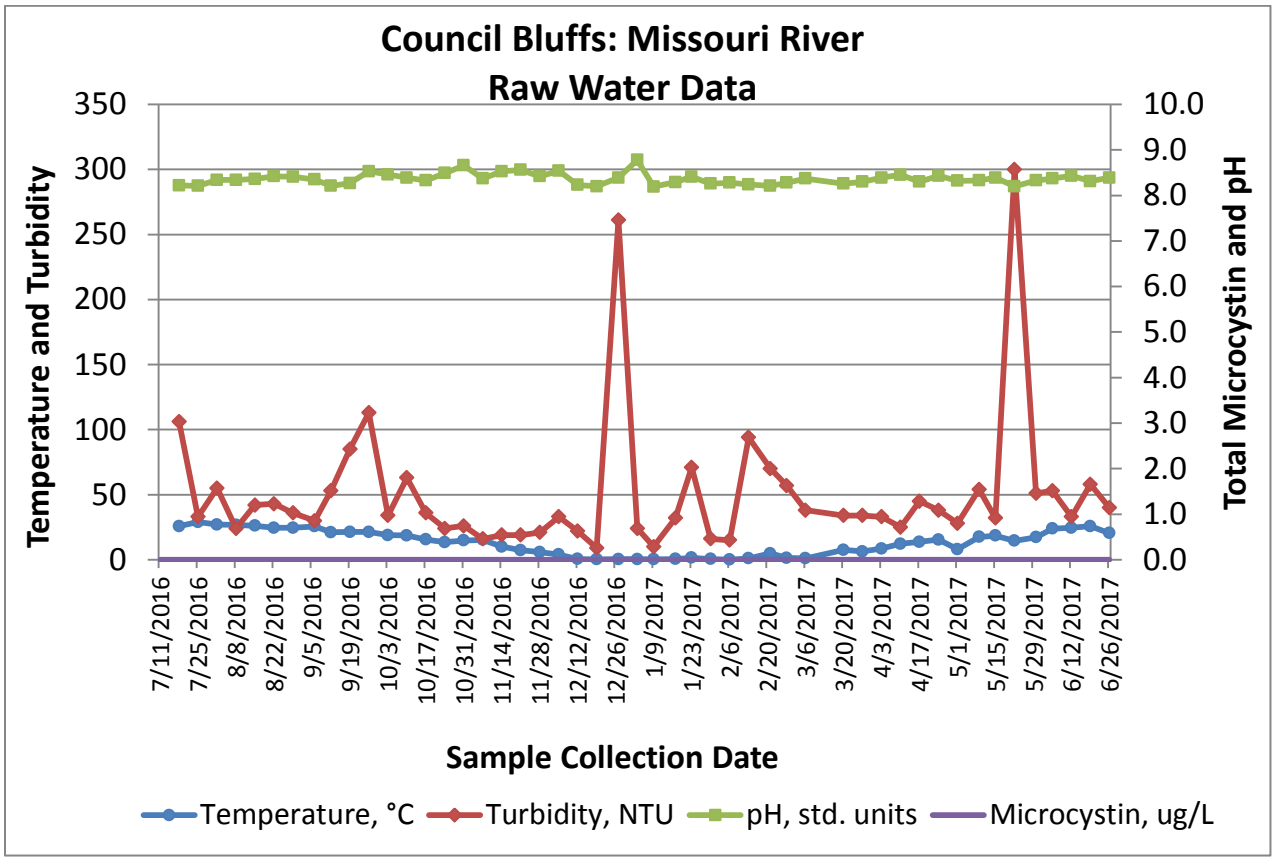
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

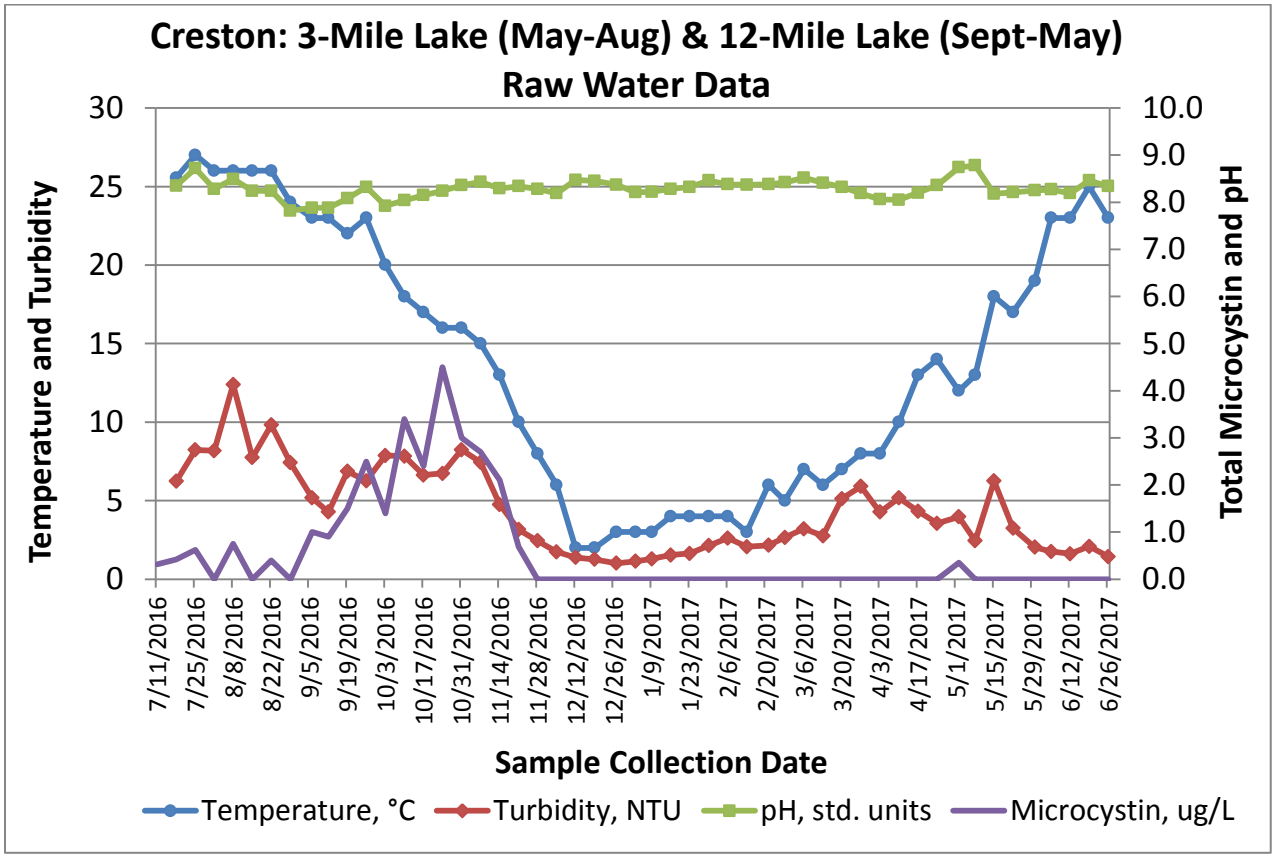

Central: West Lake Okoboji
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

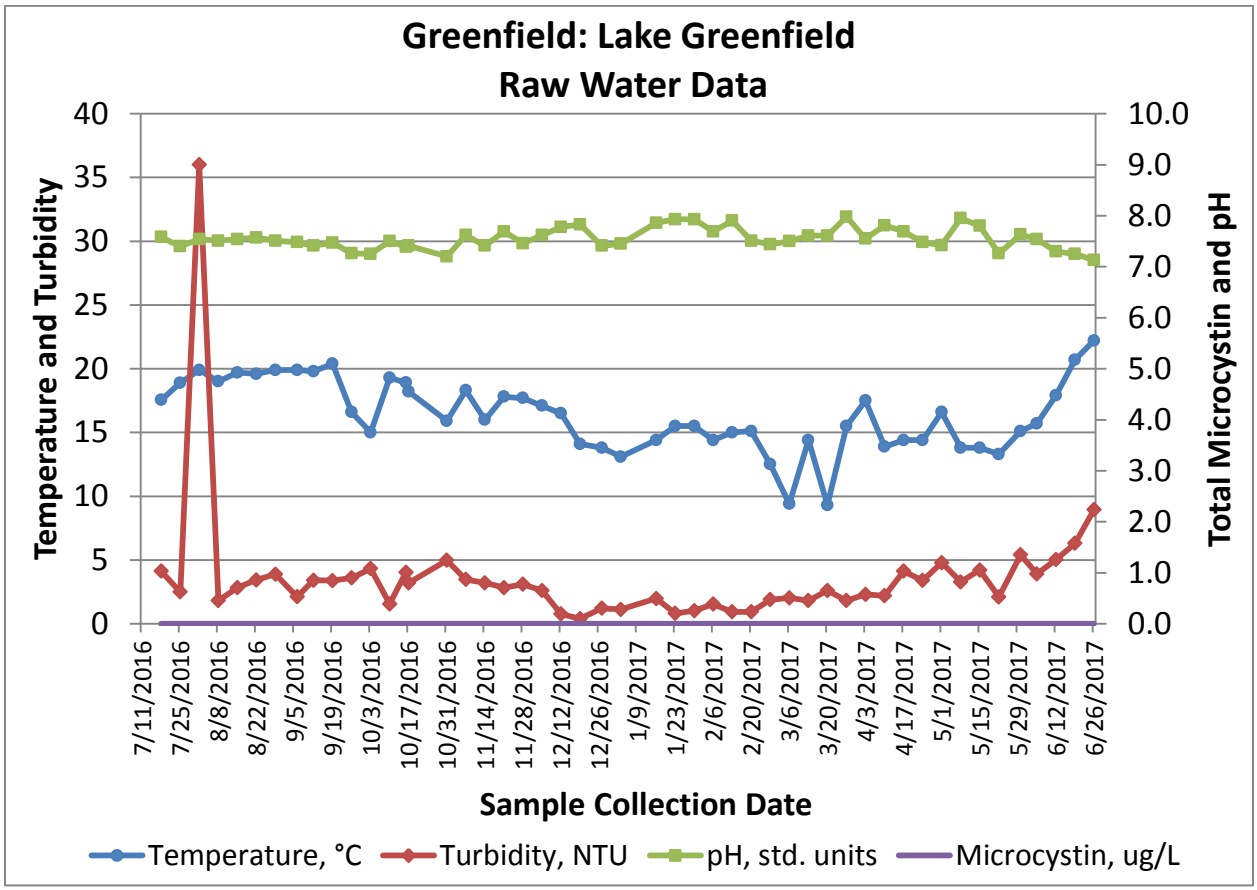

Chariton: Lake Ellis (Fall-Winter) &
Lake Morris (Spring- Early Summer)
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

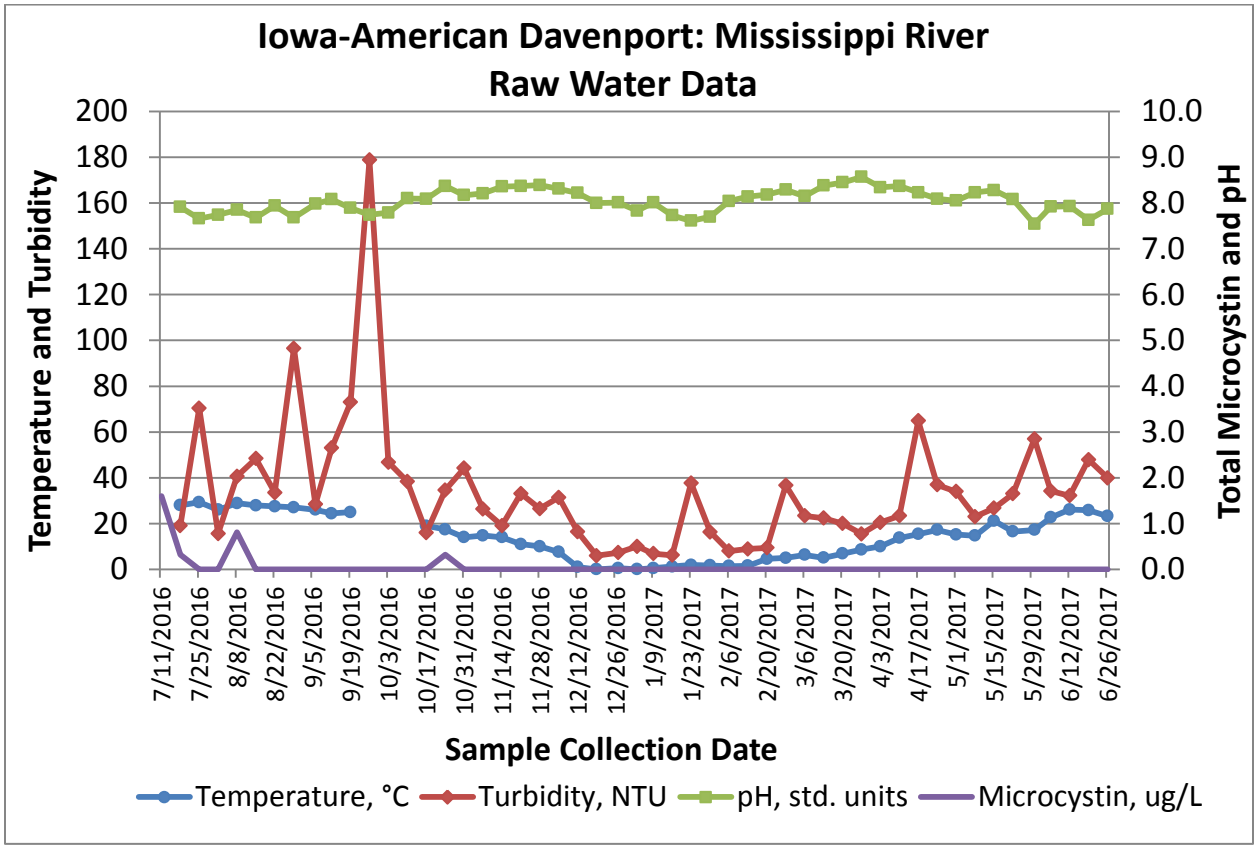

Clarinda: Nodaway River
Raw Water Data (after presedimentation basin)
Temperature and Turbidity
Total Microcystin and pH
30
25
20
15
10
5
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

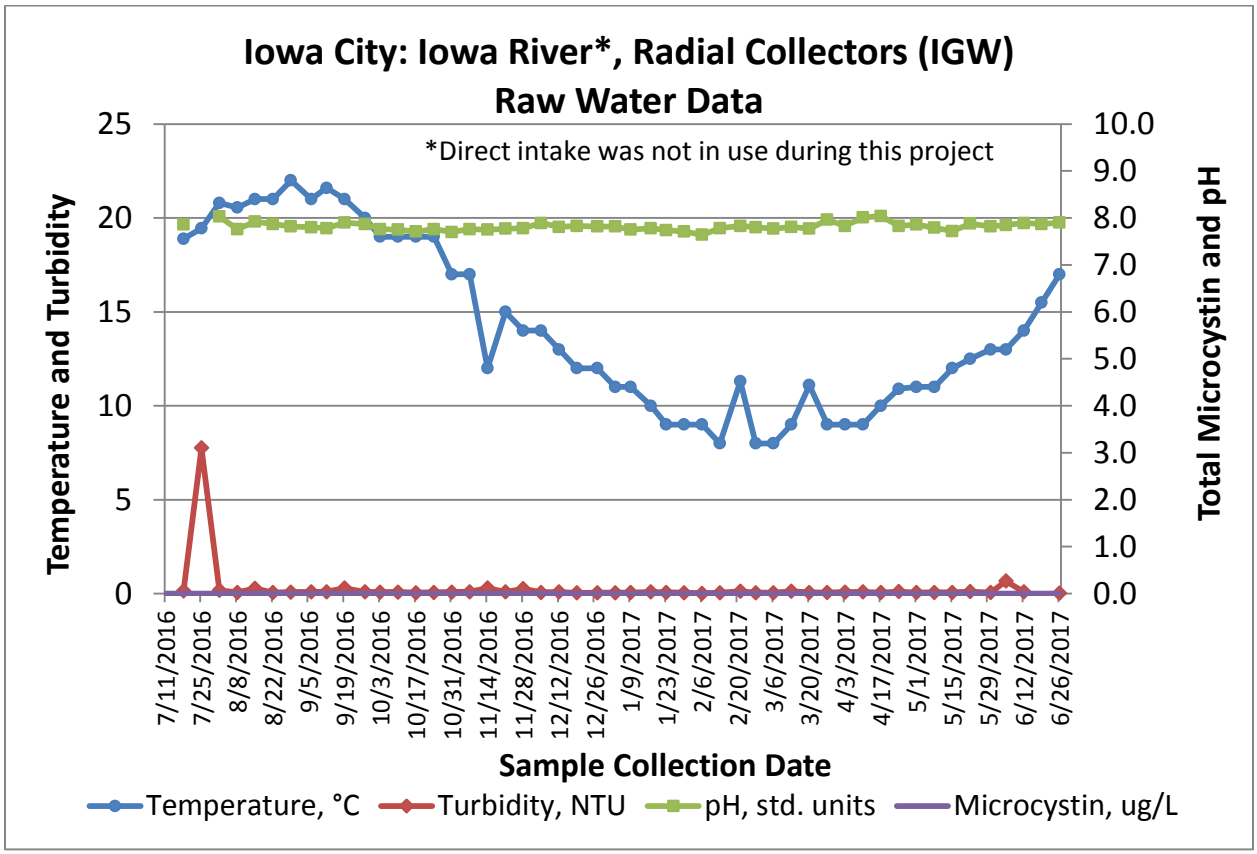

Corning: Lake Binder, City Reservoir, Lake Icaria
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
30
25
20
15
10
5
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

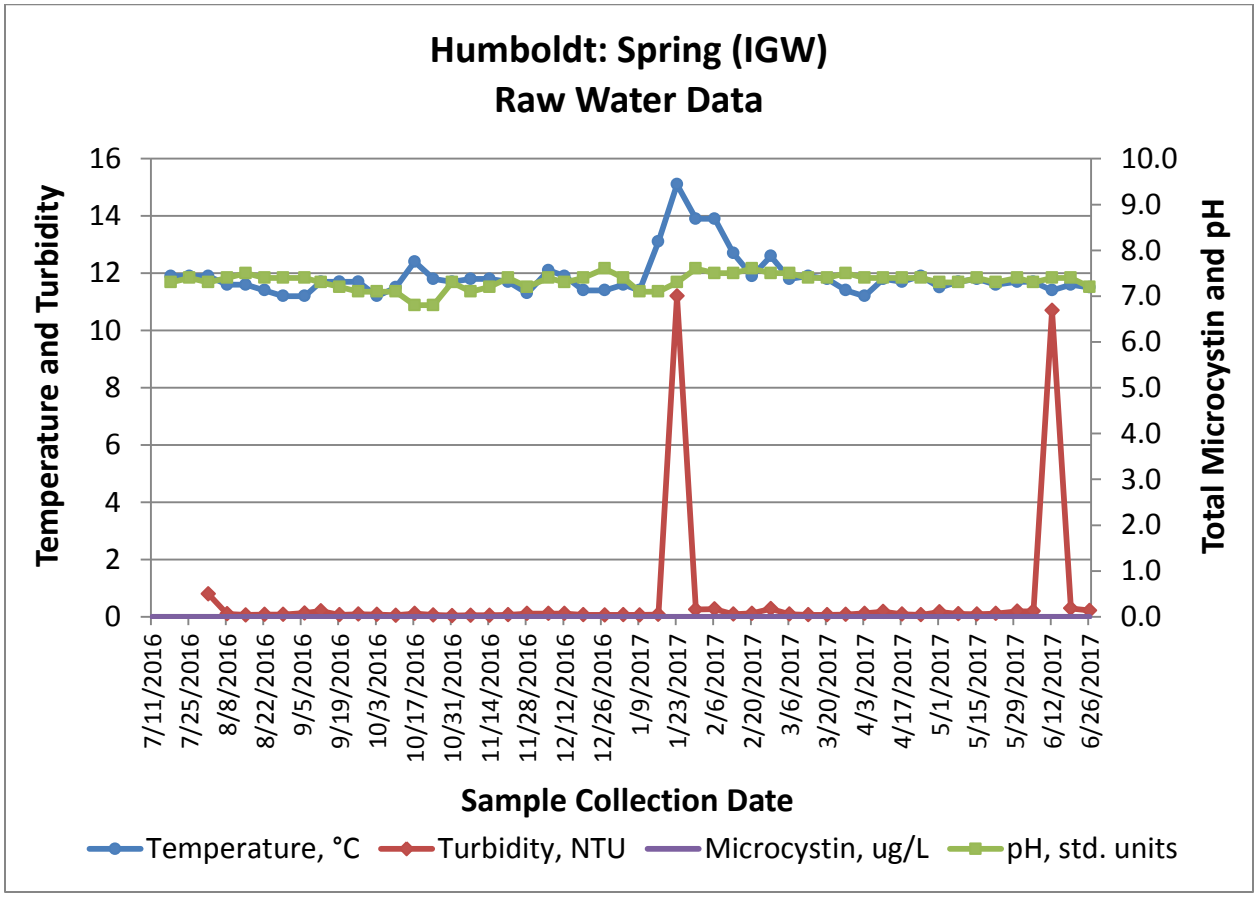

Council Bluffs: Missouri River
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
350
300
250
200
150
100
50
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

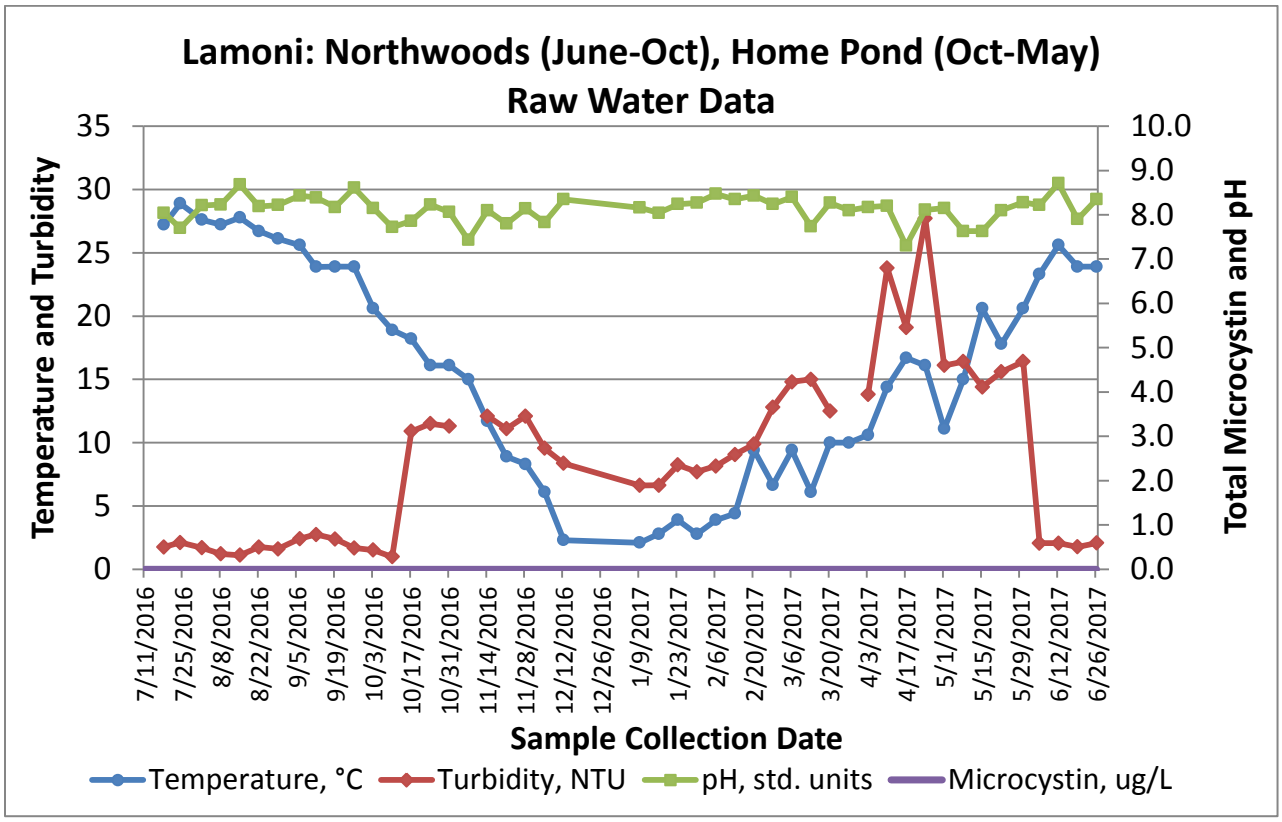

Creston: 3-Mile Lake (May-Aug) & 12-Mile Lake (Sept-May)
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
30
25
20
15
10
5
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

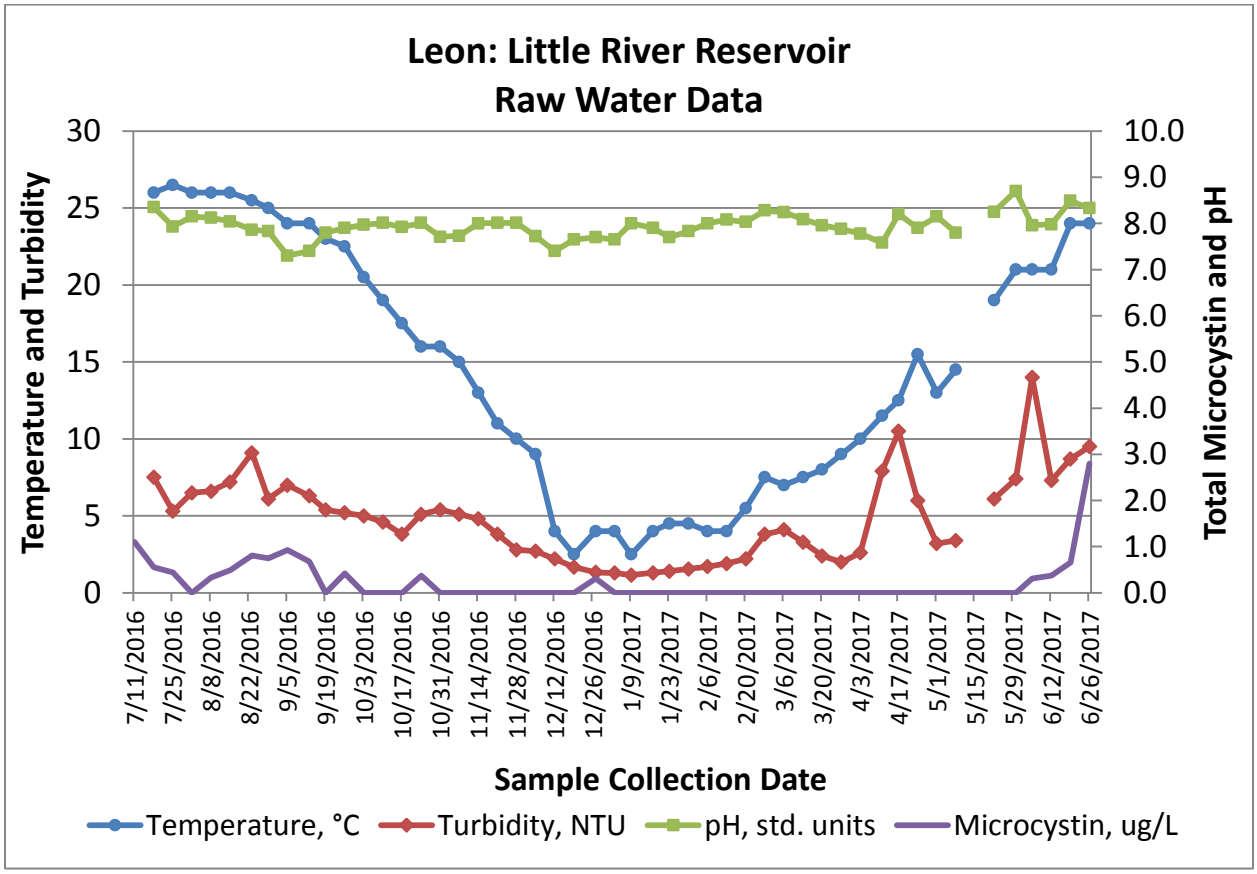

Greenfield: Lake Greenfield
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

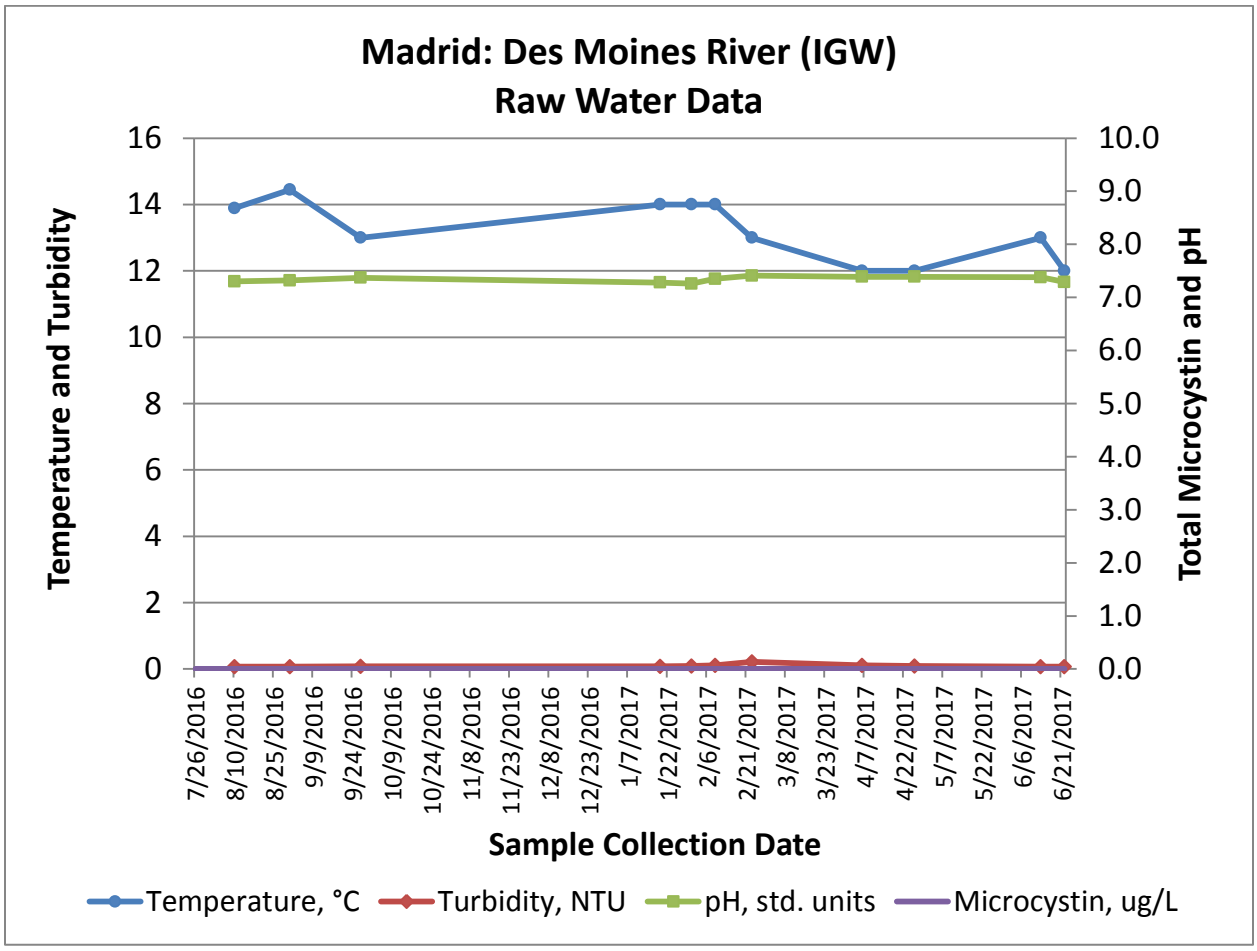

Iowa-American Davenport: Mississippi River
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

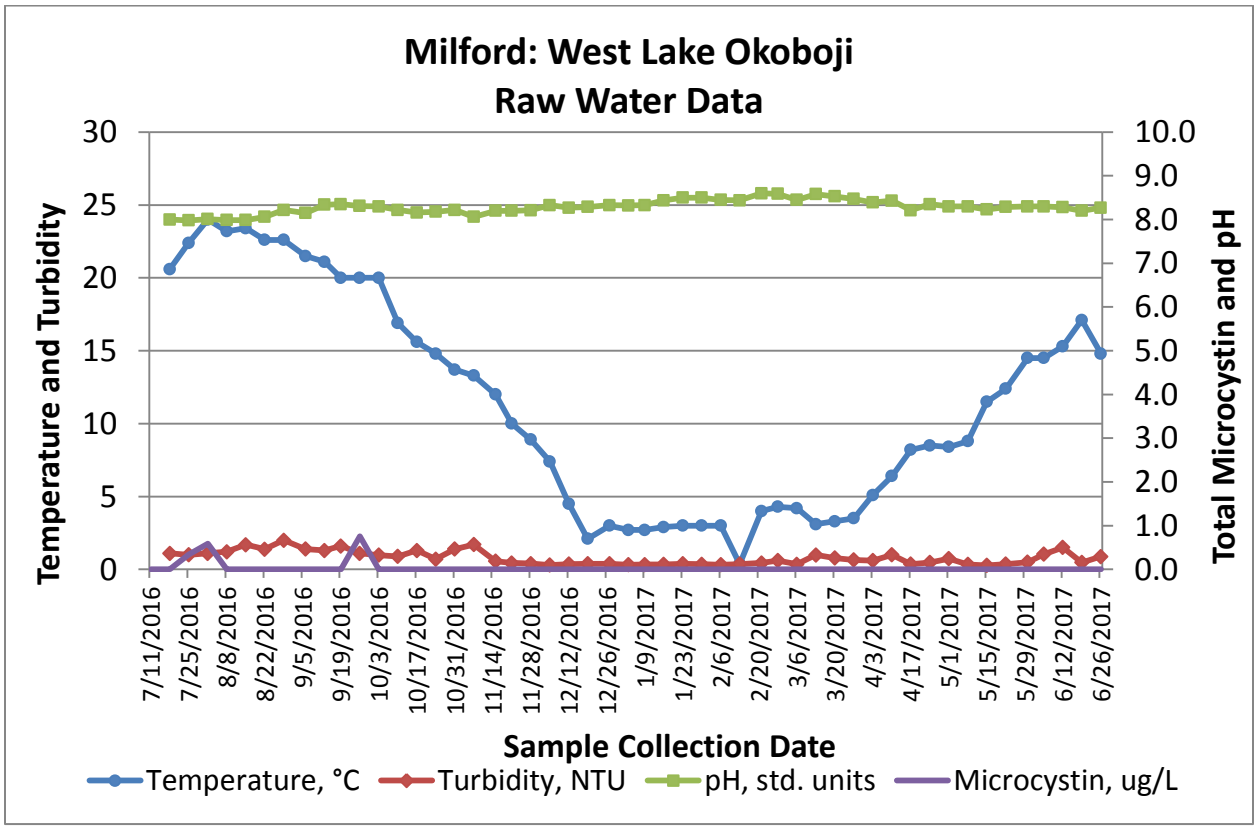

Iowa City: Iowa River*, Radial Collectors (IGW)
Raw Water Data
*Direct intake was not in use during this project
Temperature and Turbidity
Total Microcystin and pH
25
20
15
10
5
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

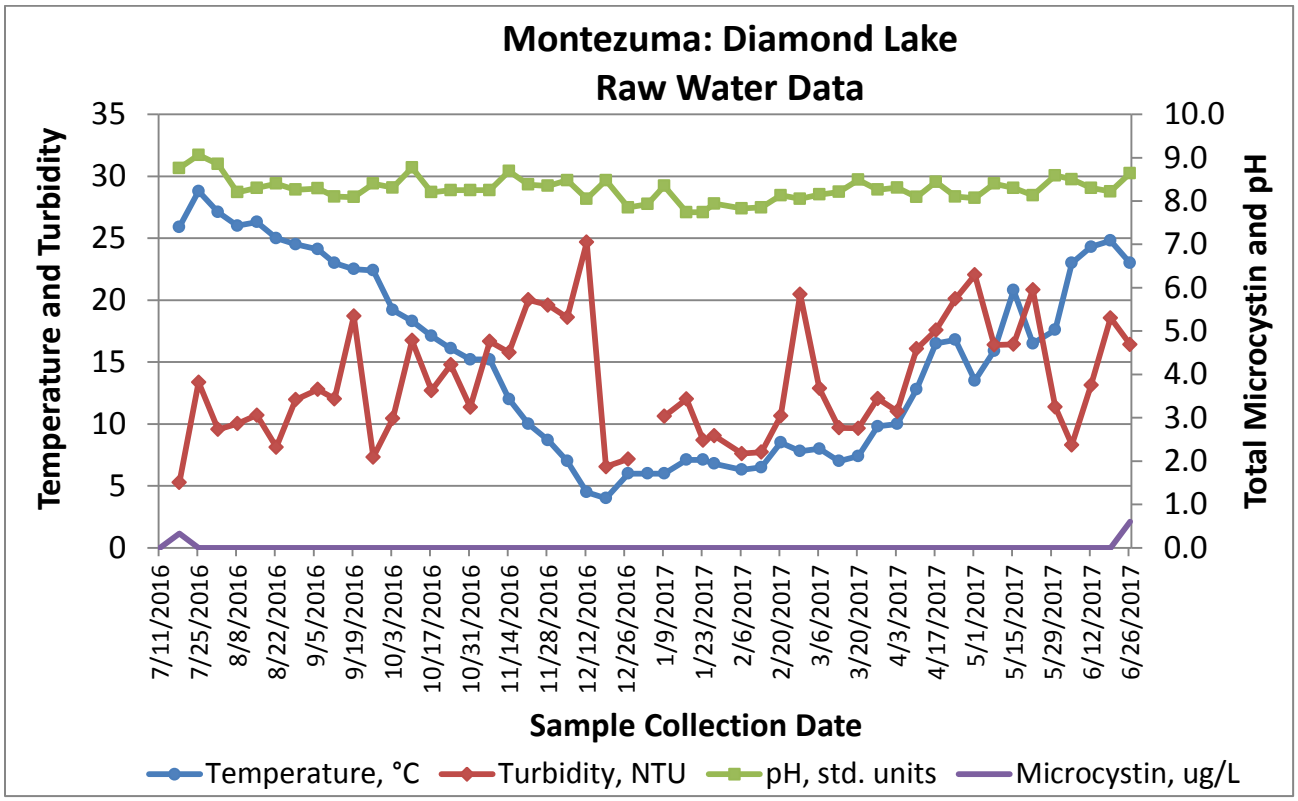

Humboldt: Spring (IGW)
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
16
14
12
10
8
6
4
2
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
Microcystin, ug/L
pH, std. units

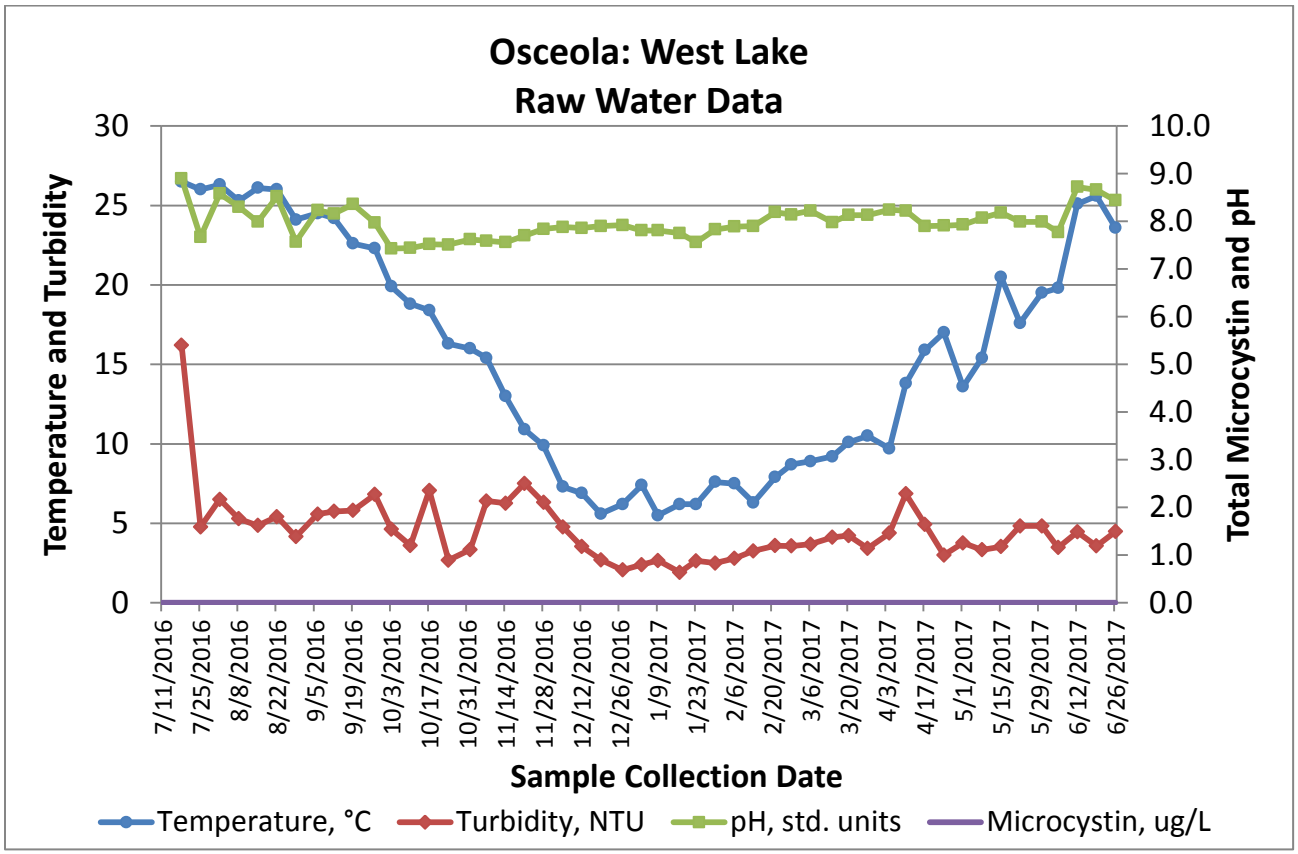

Lamoni: Northwoods (June-Oct), Home Pond (Oct-May)
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

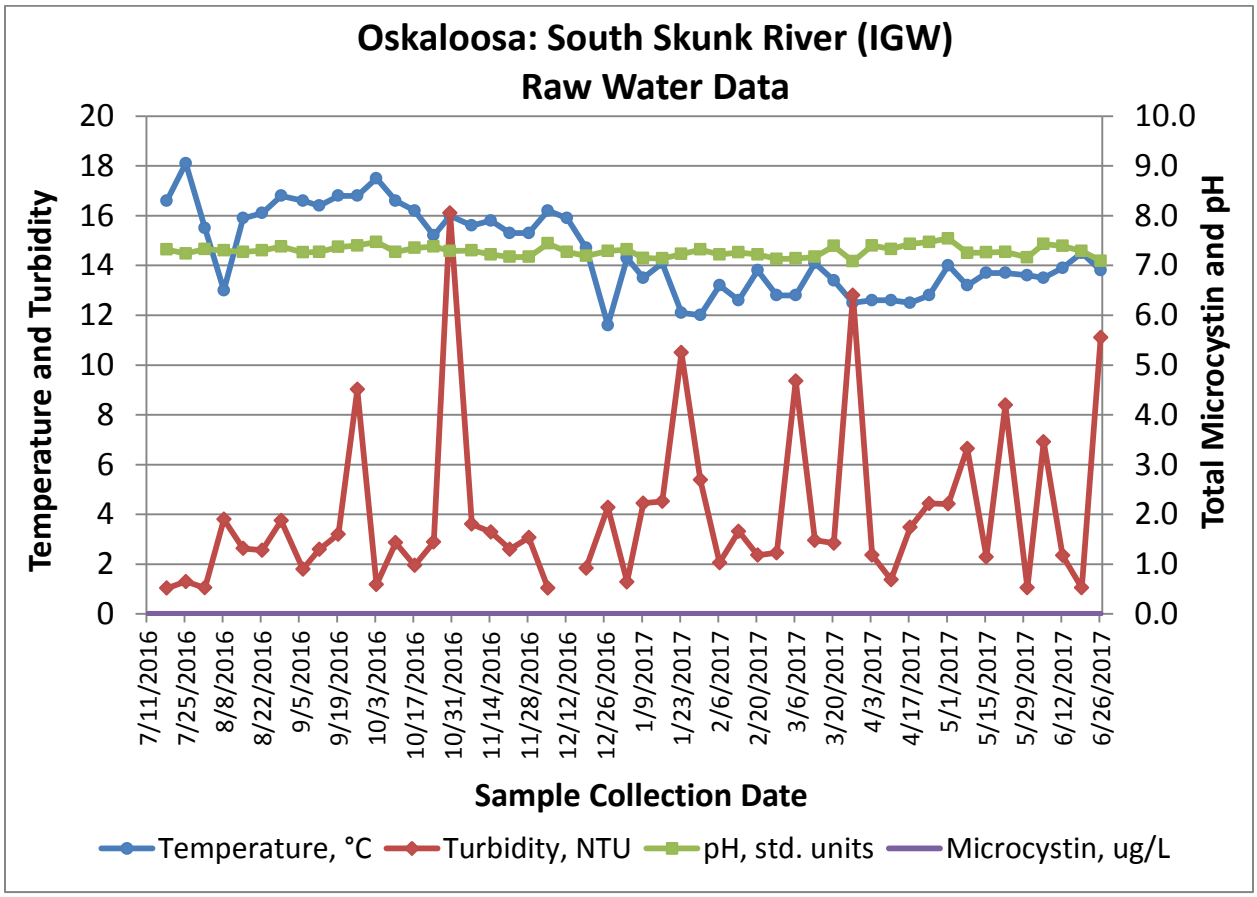

Leon: Little River Reservoir
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

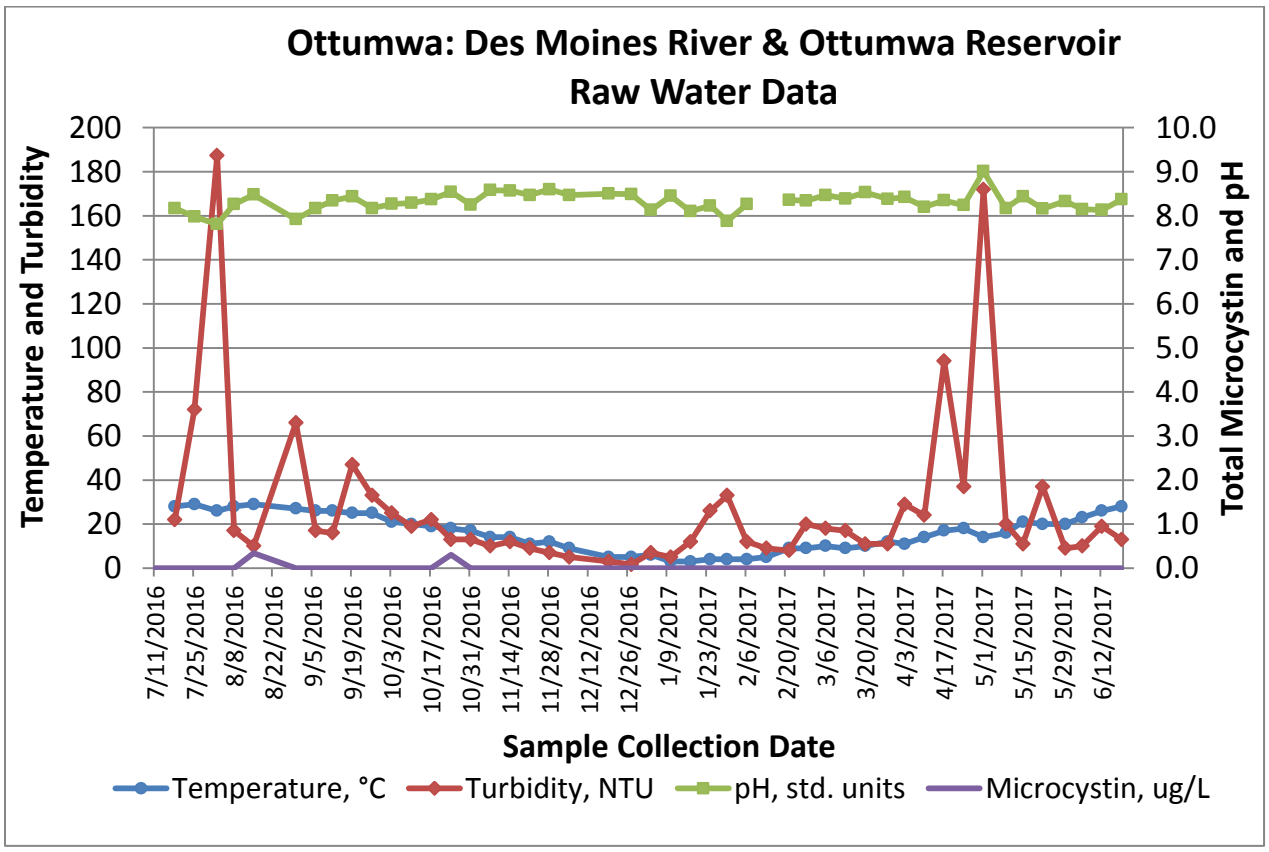

Madrid: Des Moines River (IGW)
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
16
14
12
10
8
6
4
2
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/26/2016
8/10/2016
8/25/2016
9/9/2016
9/24/2016
10/9/2016
10/24/2016
11/8/2016
11/23/2016
12/8/2016
12/23/2016
1/7/2017
1/22/2017
2/6/2017
2/21/2017
3/8/2017
3/23/2017
4/7/2017
4/22/2017
5/7/2017
5/22/2017
6/6/2017
6/21/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

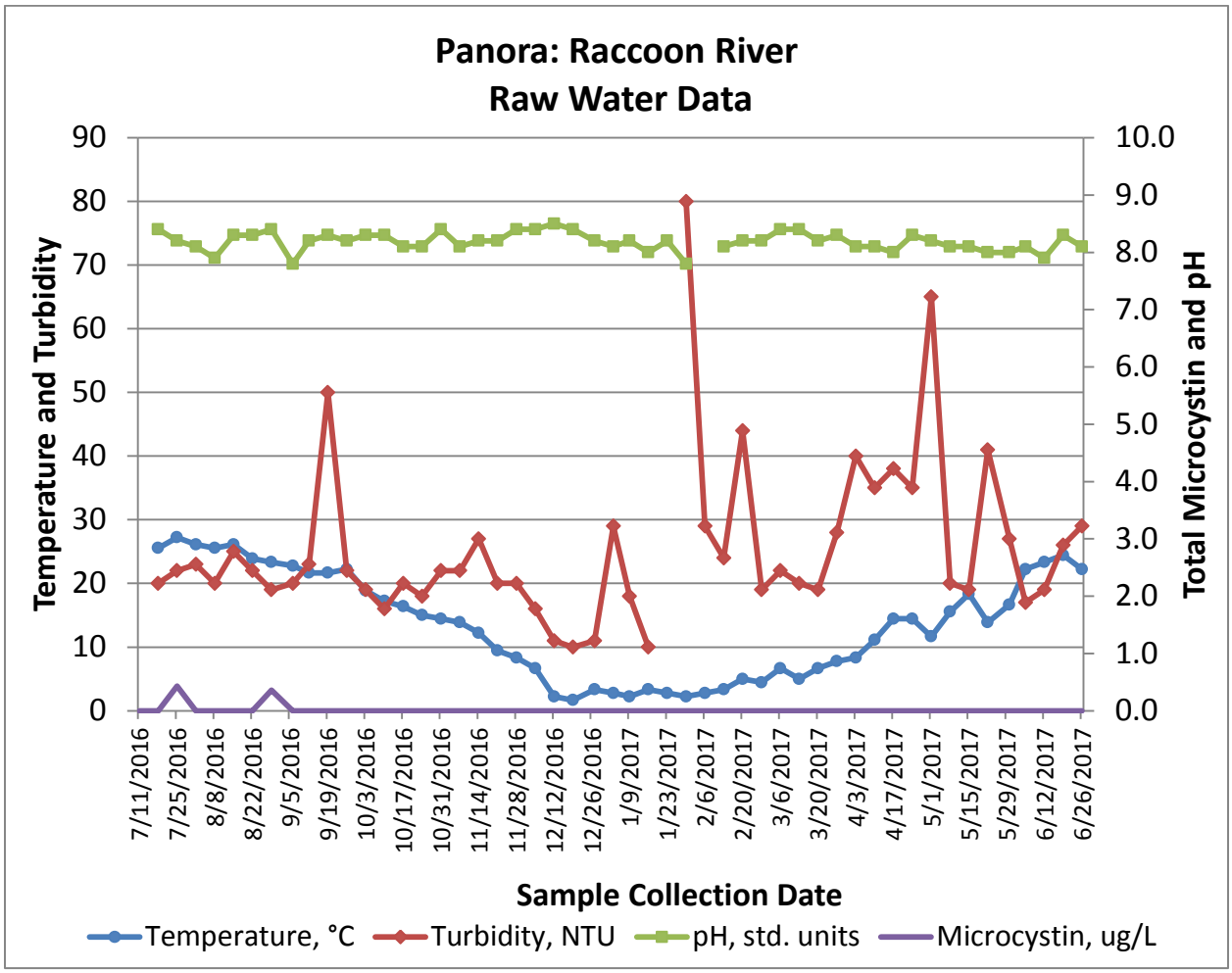

Milford: West Lake Okoboji
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
30
25
20
15
10
5
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

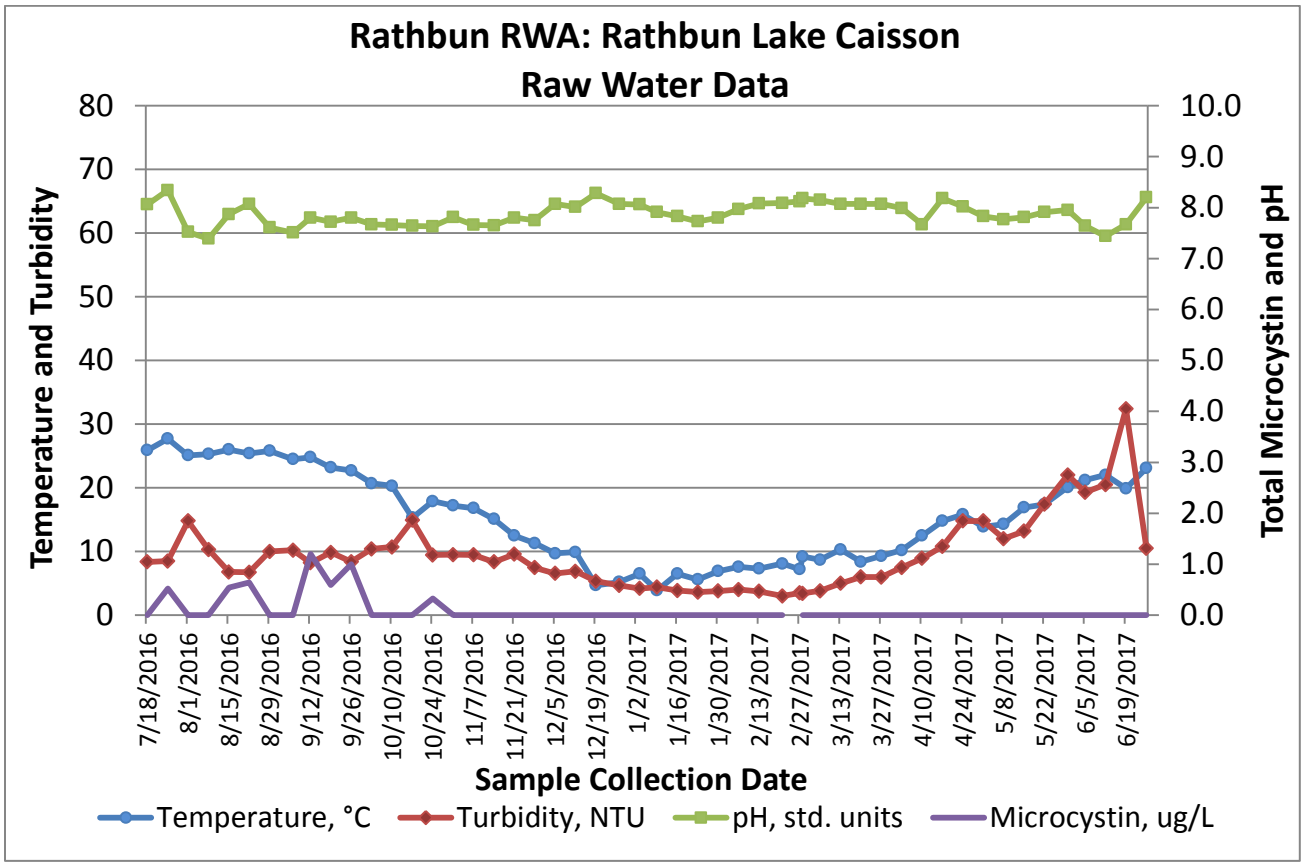

Montezuma: Diamond Lake
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
0
5
10
15
20
25
30
35
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

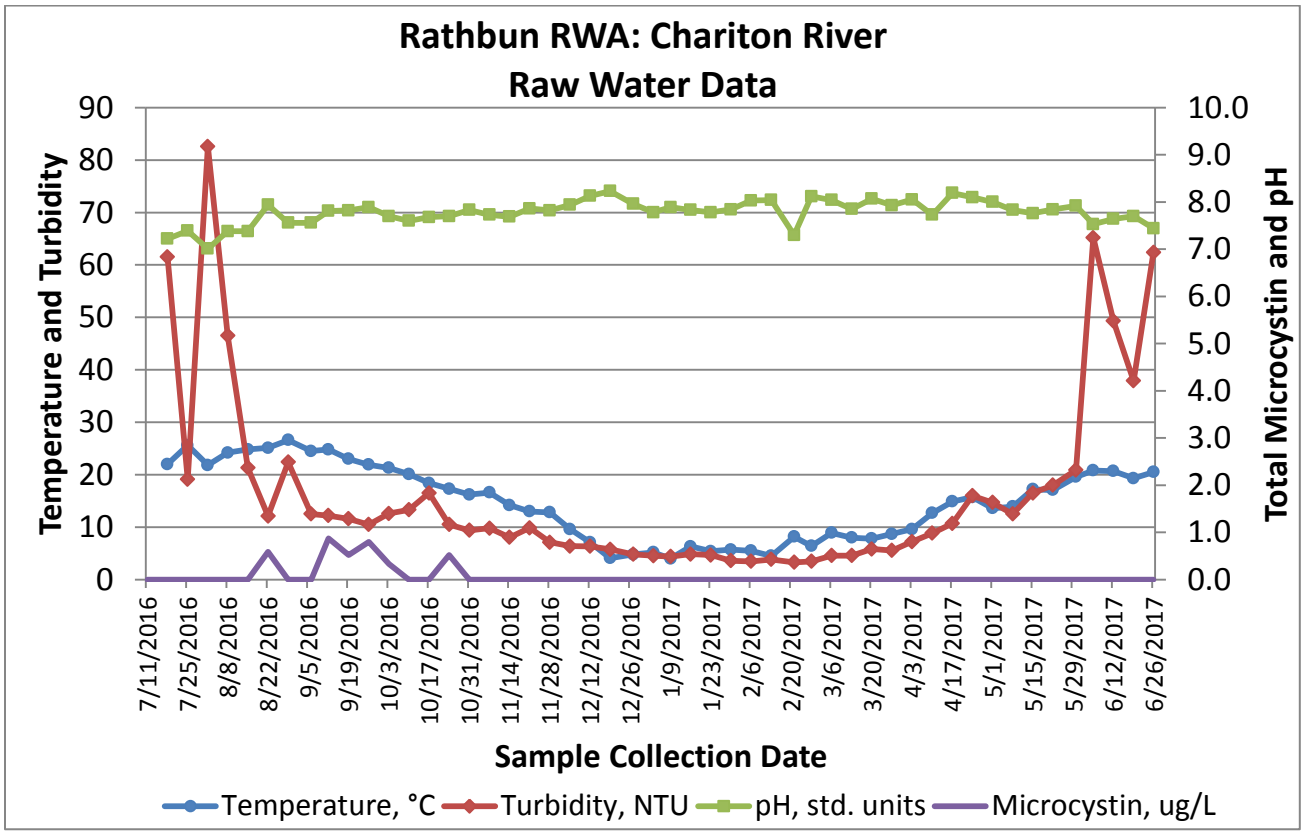

Osceola: West Lake
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
0
5
10
15
20
25
30
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

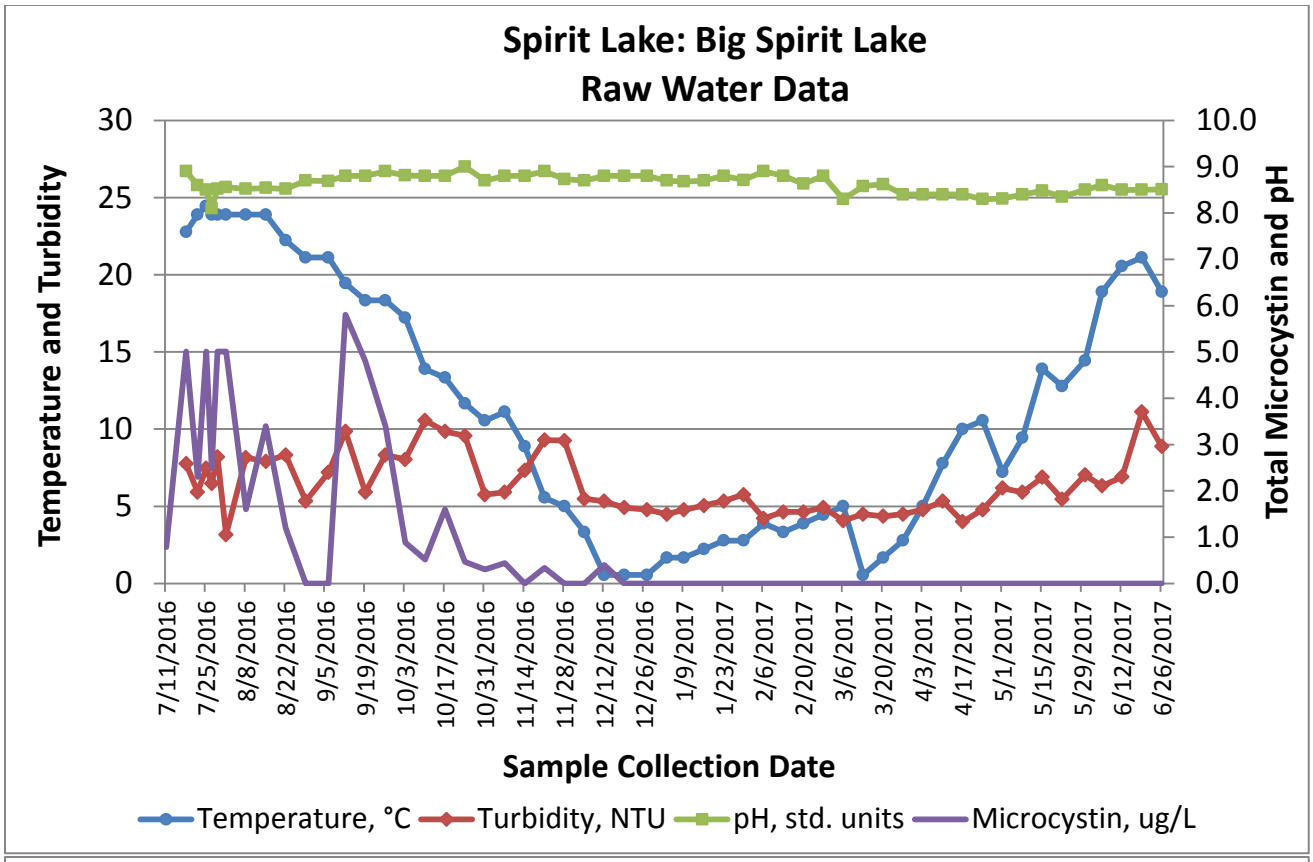

Oskaloosa: South Skunk River (IGW)
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

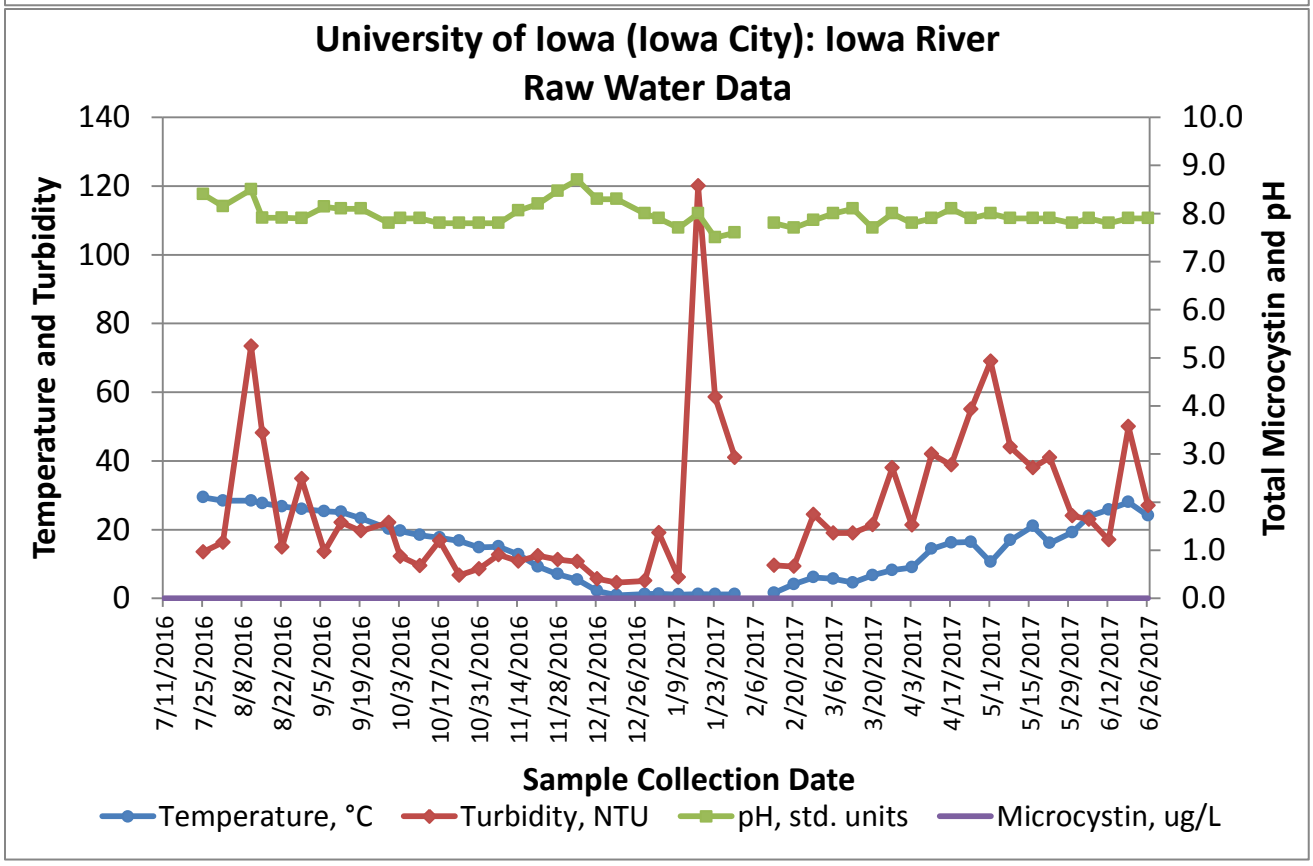

Ottumwa: Des Moines River & Ottumwa Reservoir
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

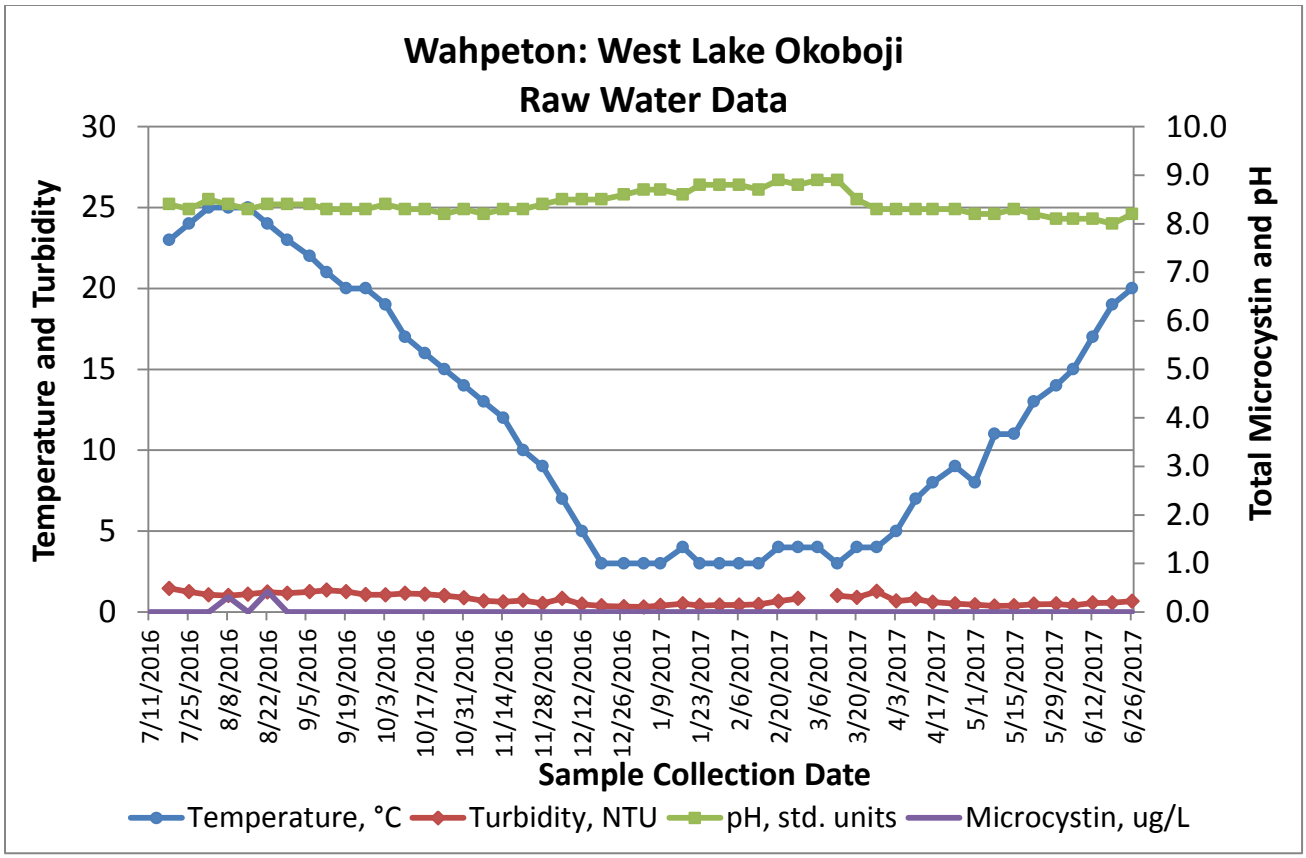

Panora: Raccoon River
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
90
80
70
60
50
40
30
20
10
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

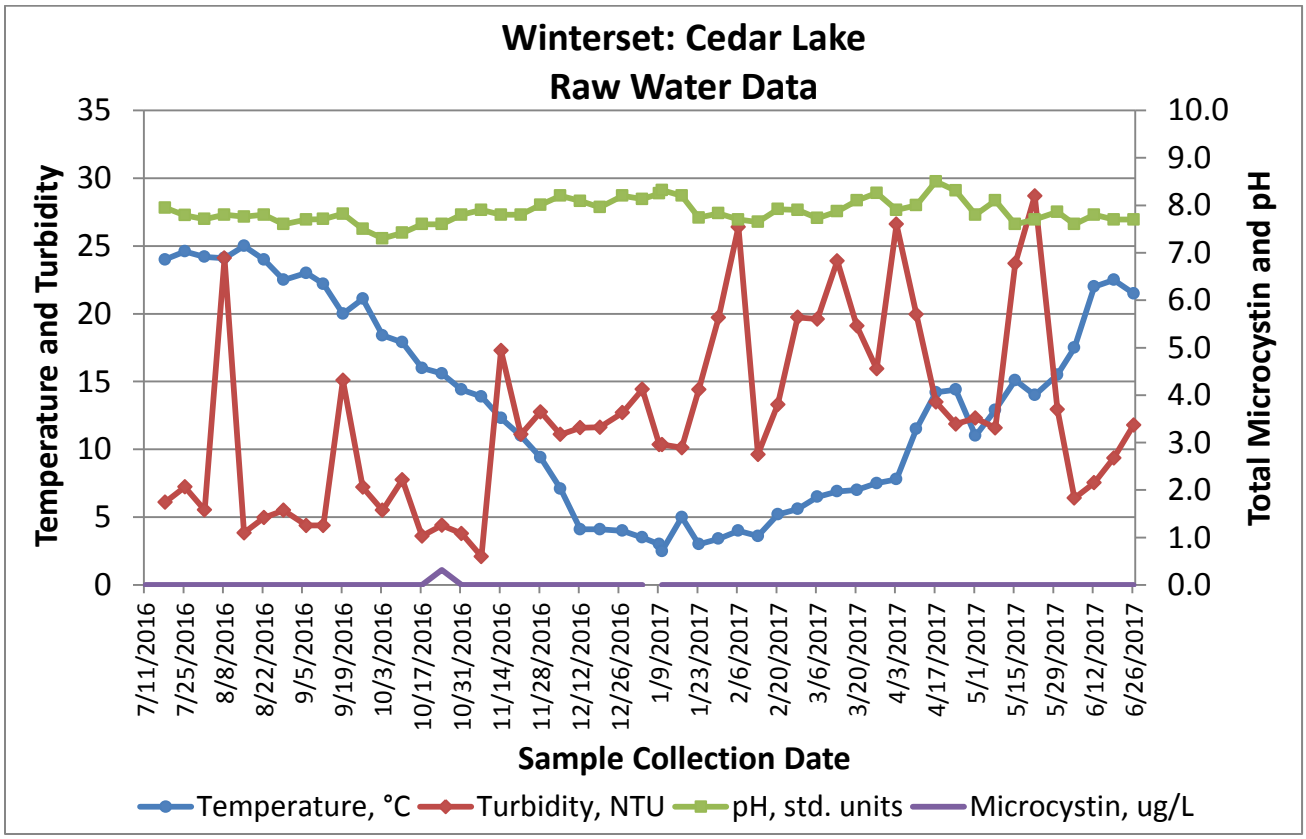

Rathbun RWA: Rathbun Lake Caisson
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
0
10
20
30
40
50
60
70
80
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
7/18/2016
8/1/2016
8/15/2016
8/29/2016
9/12/2016
9/26/2016
10/10/2016
10/24/2016
11/7/2016
11/21/2016
12/5/2016
12/19/2016
1/2/2017
1/16/2017
1/30/2017
2/13/2017
2/27/2017
3/13/2017
3/27/2017
4/10/2017
4/24/2017
5/8/2017
5/22/2017
6/5/2017
6/19/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L


Rathbun RWA: Chariton River
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
0
10
20
30
40
50
60
70
80
90
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
7/11/2016
7/25/2016
8/8/2016
8/22/2016
9/5/2016
9/19/2016
10/3/2016
10/17/2016
10/31/2016
11/14/2016
11/28/2016
12/12/2016
12/26/2016
1/9/2017
1/23/2017
2/6/2017
2/20/2017
3/6/2017
3/20/2017
4/3/2017
4/17/2017
5/1/2017
5/15/2017
5/29/2017
6/12/2017
6/26/2017
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L


Spirit Lake: Big Spirit Lake
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L


University of Iowa (Iowa City): Iowa River
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L


Wahpeton: West Lake Okoboji
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L


Winterset: Cedar Lake
Raw Water Data
Temperature and Turbidity
Total Microcystin and pH
Sample Collection Date
Temperature, °C
Turbidity, NTU
pH, std. units
Microcystin, ug/L

Appendix B: Invitation Letter to PWS regarding the Microcystin Monitoring Program

May 20, 2016

PWS Name
PWS Address

Re: Microcystin Monitoring Program

Dear PWS:

In March, the Iowa DNR sent out a letter indicating that the department would be sponsoring a microcystin monitoring program to evaluate the occurrence of microcystin in Iowa and to assist with monitoring costs for systems. The letter received a positive response, with most systems indicating their desire to participate in the program.

To that end, the Iowa DNR is pleased to announce the contract with the State Hygienic Laboratory (SHL) at the University Iowa for total microcystin analysis has been approved. Key points about the voluntary monitoring program are listed below.

- The Iowa DNR will pay for door to door weekly shipping and analysis of raw (prior to any chemical addition) source water samples for one year or until the maximum funds allotted for this contract ($250,000) are depleted. If the raw water microcystin results are at or above 0.3 µg/L, additional monitoring of the raw and finished water will be required according to the attached flow chart. Additional raw water and finished water monitoring will be covered by this program as long as funds remain in the contract. If daily finished water monitoring is necessary after depletion of contract funds, the cost of those samples may be the responsibility of the public water system.

- If two consecutive finished water microcystin results are above 0.3 µg/L, the system will be expected to issue early public messaging. If the finished water microcystin results are above 3 µg/L on any two days during a 10-day period or above the 0.3 µg/L 10-day health advisory for children, the system will be expected to respond to the situation with a public advisory and possible treatment changes to mitigate the occurrence. If appropriate public messaging or advisories are not enacted according to the flow chart, the Iowa DNR will issue the message or advisory on behalf of the system. The public messaging and advisory information is enclosed with this letter.

- Sample collection days have been identified as Monday (primary) and Thursday (as needed). Sample analysis days have been identified as Wednesday (primary) and Monday (as needed). It is expected that samples will be shipped to SHL on the days identified as sampling days. If it becomes necessary to sample finished water, you may need to store those samples until the next shipping date. In addition to the raw water samples, we ask that you voluntarily collect some additional information and report the results on the sample collection sheet. These include temperature, pH, and turbidity.

Generally, we anticipate that SHL will conduct analysis during the work week. However, we have arranged for expedited analysis during the week and over the weekend if emergency conditions warrant such action. Each system will receive one month of sampling and shipping

supplies by June 15. It is expected that the first day of sampling and shipping will occur on **Monday, July 11, 2016**.

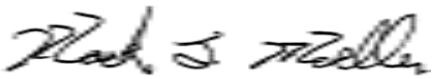
- Each system will be notified by email from SHL that their analytical results are ready to review and download from the OpenElis system. (If you do not currently have an OpenElis account, please fill out the SHL Web Access Form and return to ask-shl@uiowa.edu. The SHL will contact you to assign a password.) Each system may also elect to receive a paper copy of the results. Iowa DNR will have access to all the results in electronic form. Iowa DNR and SHL aim to have results available by 4 pm on the day of the analysis.

- The Iowa DNR will contact systems with raw or finished microcystin results that exceed 0.3 ug/L to discuss additional sampling or other necessary action; the goal will be to make contact as soon as possible but no later than the next business day.

Please review, complete, and return the enclosed Agreement to Participate in the Microcystin Surveillance Program by **June 15, 2016**. If are not able to respond by June 15 due to the need to gain approval of city council, board, or other governing agency, please contact Jennifer Bunton as soon as possible to discuss an alternate date.

A conference call will be held so participants have the opportunity to ask questions, provide input and share ideas with the group. SHL analytical and shipping staff will also participate to answer any questions regarding those items. The conference call will be held from 1- 3 pm on Thursday, June 30; if you are unable to make this call, you may contact Jennifer Bunton at 515/725-0298 or jennifer.bunton@dnr.iowa.gov with any questions.

Sincerely,



Mark T. Moeller, P.E., Supervisor
Water Supply Engineering Section

Enclosures: Agreement to Participate in the Microcystin Surveillance Program
Flow chart
Sample public messaging and advisory language
SHL Web Access Form

Appendix C: Agreement to Participate in Microcystin Surveillance Program

Agreement to Participate in Microcystin Surveillance Program

I, _____ , as an authorized agent of _____ agree to participate in the microcystin surveillance program sponsored by the Iowa Department of Natural Resources (IDNR) for the time period of July 1, 2016 through June 30, 2017.

The system will submit a weekly source water sample per the established schedule.

The system will obtain follow-up samples as warranted based on the results of the weekly source sample per the attached Flow Chart.

The IDNR will provide funds to support the shipping and analysis to be conducted by The State Hygienic Laboratory (SHL) for all samples (initial source, follow-up source and finished as required per the attached Flow Chart).

The system will enact the early messaging or public advisory as per the attached flow chart. Examples of each are attached. If the PWS fails to complete the early messaging or public advisory, the IDNR will issue such.

This agreement will be effective July 1, 2016 through June 30, 2017.

_____	_____
Signature of PWS	Signature of IDNR
_____	_____
Printed name	Printed name
_____	_____
Title	Title

Other Requested Information:

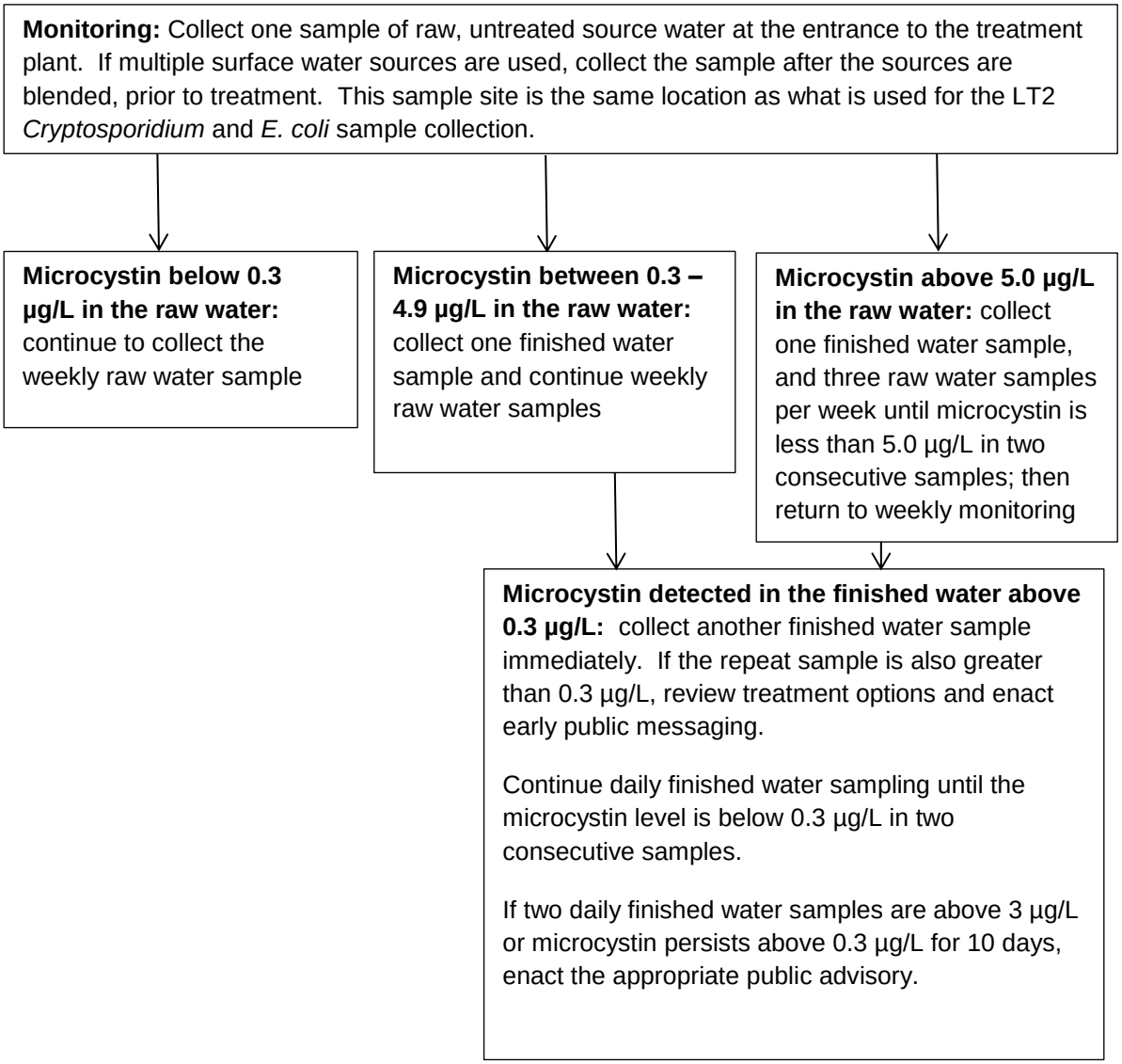
Location/ address for containers to be shipped Delivered by UPS	Location/address for containers to be picked up Picked up by FedEx
_____	_____
_____	_____
_____	_____

Names, emails, and phone for two responsible officials at PWS for results and public notice:

_____	_____	_____
Name	Email	Phone
_____	_____	_____
Name	Email	Phone

You may scan/e-mail this document to becky.schwiete@dnr.iowa.gov, mail to Water Supply Operations, 502 E. Ninth Street, Des Moines, Iowa, 50319, or FAX to 515/725-0348.

Appendix D: Microcystin Flow Chart



Microcystin Threshold Levels

Action and Advisory Language	Microcystin Level, in finished (treated) water
Early public messaging	0.3 µg/L*
Do not drink: children under age 6, pregnant women, and sensitive populations	0.3 µg/L**
Do not drink: all ages	1.6 µg/L**
Do not use the water	20 µg/L***

*Two consecutive daily samples
**EPA 10-day health advisory
***The drinking water “do not use” threshold is based upon the EPA recreational water “no contact advisory” threshold

Appendix E: Early Messaging Public Notification Template

FOR RELEASE: *DRAFT*
CONTACT: *PWS Contact Person, (XXX) XXX-XXXX*

[XX Water System or Iowa DNR] Detects Microcystin in XXX Water System

Drinking water samples analyzed by [XXX public water system and/or Iowa DNR] show microcystin, a compound produced by blue-green algae, has been detected in the treated drinking water from [XXX public water system]. At this time, there are no restrictions on water use.

U.S. EPA has established national health advisory levels for microcystin based on drinking water for 10 days. [XXX water system] is adjusting its treatment processes *(this may need to be modified based on water system capability)* to reduce microcystin levels. The Iowa DNR and the water system continue sampling to assess water quality at the plant and throughout the distribution system.

If the microcystin levels remain elevated, [the state/XXX community] may consider issuing an advisory for some or all of the population served by the [XX water system].

Citizens with questions should contact [XX water system] at [XXX number].

Appendix F: Microcystin Above Health Advisory for Infants, Children younger than age 6, and Pregnant Women Public Notification

DRINKING WATER WARNING

Microcystin is present in [name] water system

Microcystin, a compound produced by blue-green algae, has been detected in the treated drinking water from [name] water system. A sample collected on [date] shows microcystin at [level] micrograms/liter (µg/L). U.S. EPA has established a national health advisory level for bottle-fed infants and children younger than age 6 based on drinking water for 10 days. The Iowa DNR recommends that bottle-fed infants and children younger than age 6 do not drink the water at microcystin levels above 0.3 µg/L.

What should I do?

- **THE FOLLOWING INDIVIDUALS SHOULD NOT DRINK THE WATER: Bottle-fed infants and children younger than age 6, pregnant women, nursing mothers, those with pre-existing liver conditions, and those receiving dialysis treatment. These individuals may be more susceptible than the general population to the health effects of microcystins. Alternative water should be used for drinking, making infant formula, making ice, brushing teeth, and preparing food.**
- **As a precautionary measure, the elderly and immune-compromised individuals may want to consider using an alternate water source for drinking, making ice, brushing teeth and preparing food.**
- **Children aged 6 or above and adults not in the categories listed above may drink the water.** Healthy school age children and adults may use the water for all uses including bathing, washing hands, washing dishes and doing laundry. The water may be used for flushing toilets.
- Bottle fed infants and children younger than age 6 must be supervised while bathing to prevent accidental ingestion of water. Providing a final rinse of skin with uncontaminated water is recommended for people with open wounds or skin conditions such as eczema.
- **Do not boil the water.** Boiling the water will not destroy microcystin and it may become more concentrated as a result of boiling.
- Consuming water containing microcystin at the detected level may result in abnormal liver function, diarrhea, vomiting, nausea, numbness or dizziness in this population. Seek medical attention if your child is experiencing any of these symptoms.
- Contact a veterinarian immediately if pets or livestock show signs of illness.

What happened? What is being done?

[Water body name], which is a source of drinking water for the [drinking water system] is experiencing a harmful algal bloom (HAB).

XXX water system is making adjustments to its treatment processes *(this may need to be modified based on water system capability)* to help reduce microcystin levels. We are working closely with local and state public health and emergency response agencies to address and resolve the situation. We will keep you informed as the situation is resolved.

For more information, please contact _____at_____.
Additional information about harmful algal blooms can be found at ***www.epa.gov/nutrient-policy-data/cyanohabs***.

Please share this information anyone who drinks this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

PWSID#: Date distributed:

Appendix G: Microcystin Above Health Advisory for Adults (Do Not Drink) Public Notification

DRINKING WATER WARNING

Microcystin is present in [name] water system
DO NOT DRINK THE WATER

Microcystin, a compound produced by blue-green algae, has been detected in the treated drinking water from [name] water system. A sample collected on [date] shows microcystin at [level] micrograms/liter (µg/L). U.S. EPA has established a national health advisory level based on drinking water for 10 days. The Iowa DNR recommends that you do not drink the water at microcystin levels above 1.6 µg/L.

What should I do?

- **DO NOT DRINK THE WATER. An alternate source of water should be used for drinking, making infant formula, making ice, brushing teeth, and preparing food.**
- Healthy adults may use the water for bathing, washing hands, washing dishes and doing laundry. The water may be used for flushing toilets.
- Bottle fed infants and children younger than age 6 must be supervised while bathing to prevent accidental ingestion of water. Providing a final rinse of skin with uncontaminated water is recommended for people with open wounds or skin conditions such as eczema.
- **Do not boil the water.** Boiling the water will not destroy microcystin and it may become more concentrated as a result of boiling.
- Consuming water containing microcystin may result in abnormal liver function, diarrhea, vomiting, nausea, numbness or dizziness. Seek medical attention if you are experiencing any of these symptoms.
- Pets should not drink the water. Contact a veterinarian immediately if pets or livestock show signs of illness.

What happened? What is being done?

[Water body name], which is a source of drinking water for the [drinking water system] is experiencing a harmful algal bloom (HAB).

XXX water system is making adjustments to its treatment processes *(this may need to be modified based on water system capability)* to help reduce microcystin levels. We are working closely with local and state public health and emergency response agencies to address and resolve the situation. We will keep you informed as the situation is resolved.

For more information, please contact _____at_____.
Additional information about harmful algal blooms can be found at ***www.epa.gov/nutrient-policy-data/cyanohabs***.

Please share this information with anyone who drinks this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

PWSID#: Date distributed:

Appendix H: Microcystin Above Health Advisory for Contact (Do Not Use) Public Notification

DRINKING WATER WARNING

Microcystin is present in [name] water system
DO NOT USE THE WATER

Microcystin, a compound produced by blue-green algae, has been detected in the treated drinking water from [name] water system. A sample collected on [date] shows microcystin at [level] micrograms/liter (µg/L). The Iowa DNR recommends that you do not use the water at microcystin levels above 20 µg/L.

What should I do?

- **DO NOT USE THE WATER. An alternate source of water should be used for drinking (including pets), making infant formula, making ice, brushing teeth, preparing food, bathing/showering, washing hands, washing dishes or doing laundry.** If an alternate source of water is not available for washing dishes or doing laundry, providing a final rinse with uncontaminated water is recommended. If people or pets come into contact with water, promptly shower or rinse off in uncontaminated water. Skin irritation such as a rash may occur from exposure when bathing and washing hands.
- **DO NOT BOIL THE WATER.** Boiling the water will not destroy microcystin and it may become more concentrated as a result of boiling.
- You may use the water for flushing toilets.
- Consuming water containing microcystin may result in abnormal liver function, diarrhea, vomiting, nausea, numbness or dizziness. Seek medical attention if you are experiencing any of these symptoms. Skin contact with contaminated water can cause irritation or rashes. Contact a veterinarian immediately if pets or livestock show signs of illness.

What happened? What is being done?

[Water body name], which is a source of drinking water for the [public water system], is experiencing a harmful algal bloom (HAB).

XXX water system is making adjustments to its treatment processes *(this may need to be modified based on water system capability)* to help reduce microcystin levels. We are working closely with local and state public health and emergency response agencies to address and resolve the situation. We will keep you informed as the situation is resolved.

For more information, please contact _____at_____.
Additional information about harmful algal blooms can be found at ***www.epa.gov/nutrient-policy-data/cyanohabs***.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

PWSID#: Date distributed:

Appendix I: SHL Chain of Custody Sampling Form

Order #: 109436

Pages in Order: 1 of 1

Containers in Order: 1

REPORT TO:

3200

SHL CORALVILLE
UI RESEARCH PARK
2490 CROSSPARK RD
CORALVILLE, IA 52241

BILL TO:

3200

SHL CORALVILLE
UI RESEARCH PARK
2490 CROSSPARK RD
CORALVILLE, IA 52241

Environmental Sample Collection Form

Requested Analyses/Tests

Total Microcystins

TEMPERATURE_____ pH_____ TURBIDITY_____
Colector: Please fill in when sampling.

LAB: Please put this information as sample notes.

Complete or correct the following information

Collected Date: _____ (yyyy-mm-dd)
Collected Time: _____ (24 hour format hh:mm)
Client Reference: burlington muni water
PWS Id: IA2909053
Facility Id: TP01
Sample Type: SP - Special
Sample Category: Chemical
Sample Collection Point Id: TP01
Location: _____ (address, plant tap, sink)
Collector: _____ (last name, first name)
Project Name: microcystins (Laboratory approved projects only)
Collector Phone: _____ (111/222-3333)

Chain of Custody/Tracking Signatures

Relinquished By: _____ Date/Time: ____/____/____ : ____ (year mm dd Military Time)
SHL Sample Receiving Custodian: _____ Date/Time: ____/____/____ : ____ (year mm dd Military Time)
Relinquished By: _____ Date/Time: ____/____/____ : ____ (year mm dd Military Time)
SHL Sample Receiving Custodian: _____ Date/Time: ____/____/____ : ____ (year mm dd Military Time)

For SHL Use Only -- Please do not write below this line

Received By: _____ pH: _____
Evidence of Tampering: ☐ Yes ☐ No Evidence of Cooling: ☐ Yes ☐ No
Date Printed: 2016-05-13 Temperature (Celsius): _____
Bottles Received: _____ Thermometer ID: _____

FOR INTERNAL USE ONLY	FOR INTERNAL USE ONLY	FOR INTERNAL USE ONLY

State Hygienic Laboratory

Lakeside Laboratory
1838 Highway 86
Milford, IA 51351-7287
Phone # 712-337-3669

Ankeny Laboratory
2220 S. Ankeny Blvd.
Ankeny, IA 50023-9093
Phone # 515-725-1600

http://www.shl.uiowa.edu

U of I Research Park
2490 Crosspark Road
Coralville, IA 52241-4721
Phone # 319-335-4500 or
800-421-IOWA

SD 062015

Appendix J: SHL Sample Collection Form

Hygienic Laboratory

The University of Iowa

Container #14

Preservative Added
DO NOT RINSE OUT PRESERVATIVE

2016 IDNR Microcystin Project
Algal Toxins (Microcystins) in Water by Immunoassay

Collection and Shipping Instructions

Collection and Handling

- Immediately freeze the reusable ice packs provided in the cooler.
- Collect RAW water samples before any treatment or chemical addition at the same location used for LT2 sampling. Collect FINISHED water samples at the source entry point (SEP).
- At each sample site fill 2 vials to within ½ inch of shoulder with water. DO NOT fill to the top (See *Image A*).

Image A

- Replace lid and carefully tighten.
- Complete information on the container label.
- Fill out the sampling information form provided.
- Ship sample and completed information form promptly after collection.
- If sample cannot be shipped the same day of collection, immediately cool to less than 6°C or 42°F. And ship sample as soon as possible.

Shipping Instructions

- Please call **1-800-463-3339** (1-800-GoFedEx) to schedule a pickup at least 24 hours before you plan to sample. This is an automated line. When prompted as to what you want to do, just say "**schedule pickup**". Follow the prompts to schedule the Pick Up. If at any time you are having difficulty, say either option of "Rep" or "Agent" and you will be connected to a FedEx Customer Service Representative and they will help schedule everything for you.

Note: Samples not meeting preservation or holding time requirements may be analyzed with results qualified unless the submitter or regulations have instructed otherwise.

Rev: 6/28/2016 **Page 1 of 2**

State Hygienic Laboratory at The University of Iowa
UI Research Park/2490 Crosspark RD
Coralville, IA 52241
(319)335-4500 Fax: (319)335-4555

Ankeny Laboratory
2220 S. Ankeny Blvd.
Ankeny, IA 50023-9093
(515)725-1600 Fax: (515)725-1642

Iowa Lakeside Laboratory
1838 Highway 86
Milford, IA 51351-7267
(712)337-3669 ext. 6

http://www.shl.uiowa.edu

Hygienic Laboratory

The University of Iowa

Collection and Shipping Instructions

- Samples may also be brought directly to any of our laboratory locations: Ankeny (by 4:30pm), Coralville (by 5:00pm) or Lakeside (by 12:00 noon). Or you may take the samples to a FedEx drop off site. Please use whichever method is more convenient for you.

Packing Instructions

- Once sample is collected, place the 2 vials in the bubble wrap bag provided and secure with rubber band.
- Put the frozen ice packs in the bottom of the cooler.
- Take the bubble wrapped vials and put on top of the frozen ice packs. (See *Image B*)
- Return the **filled out sample submittal form** back in the plastic bag it came in. Place the form in plastic over the vials, inside the cooler, to help keep the vials from shifting around and breaking.
- Put the cooler lid on and tape box shut.
- Affix the FedEx shipping label to the top of the cooler box (See *Image C*). Retain the receipt for your records.

Image B

Image C

*If you feel additional packing material is needed or if the material sent with the kit is misplaced, use newspaper or brown paper. Scrunch a little of the paper and place between the ice packs and the vials. Add the vials and then place the paperwork in plastic on top of the vials. Put the lid on and tape shut.

Contact Information: Client Services: questions, orders, etc., 800-421-4692 or 319-335-4500

Note: Samples not meeting preservation or holding time requirements may be analyzed with results qualified unless the submitter or regulations have instructed otherwise.

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State Hygienic Laboratory at The University of Iowa
UI Research Park/2490 Crosspark RD
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(319)335-4500 Fax: (319)335-4555

Ankeny Laboratory
2220 S. Ankeny Blvd.
Ankeny, IA 50023-9093
(515)725-1600 Fax: (515)725-1642

Iowa Lakeside Laboratory
1838 Highway 86
Milford, IA 51351-7267
(712)337-3669 ext. 6

http://www.shl.uiowa.edu

Appendix K: Analytical Data, sorted alphabetically by PWS Name and PWSID

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
Burlington Municipal Waterworks (IA2909053)										
2016-07-11 08:30	2016-07-12 09:15		100 oak st lowlift	Raw	TP01	TP01	0.38			
2016-07-18 08:30	2016-07-19 09:15		100 oak st lowlift	Raw	TP01	TP01	0.51	25.0	40.5	8.49
2016-07-18 08:30	2016-07-19 09:15		lab tap sep	Finished	01	01	<0.30		6.23	9.34
2016-07-25 10:00	2016-07-26 09:20	A	mississippi river	Raw	TP01	RAW	0.51	25.0	99.7	8.1
2016-07-25 10:00	2016-07-26 09:20	A	sep01	Finished	01	01	<0.30	26.1		9.28
2016-08-01 10:00	2016-08-02 09:20		mississippi river	Raw	TP01	RAW	0.42	27.2	60.8	8.08
2016-08-01 10:00	2016-08-02 09:20	A	sep01	Finished	01	01	<0.30	26.1		9.29
2016-08-08 10:30	2016-08-09 09:15		mississippi river	Raw	TP01	RAW	<0.30	25.0	83.4	8.13
2016-08-15 12:30	2016-08-16 09:15	A	mississippi river	Raw	TP01	RAW	0.42	24.4	139	7.68
2016-08-22 11:00	2016-08-23 09:25		mississippi river	Raw	TP01	RAW	<0.30	25.6	99.3	8.14
2016-08-22 11:00	2016-08-23 09:25		sep01	Finished	01	01	<0.30	25.0	0.02	9.38
2016-08-29 08:45	2016-08-30 09:18		mississippi river	Raw	TP01	RAW	<0.30	25.0	60.3	8.04
2016-09-06 09:30	2016-09-07 09:05		mississippi river	Raw	TP01	RAW	0.38	22.8	47.4	8.14
2016-09-12 08:30	2016-09-13 09:05		mississippi river	Raw	TP01	RAW	0.77	24.0	41	8.14
2016-09-12 08:30	2016-09-13 09:05		sep01 lab tap	Finished	01	01	<0.30	24.0	0.01	9.16
2016-09-19 14:00	2016-09-20 09:30		mississippi river	Raw	TP01	RAW	<0.30	21.1	60.7	8.11
2016-09-19 14:00	2016-09-20 09:30		sep 01	Finished	01	01	<0.30	21.7	0.02	9.41
2016-09-26 09:00	2016-09-27 09:23	A	mississippi river	Raw	TP01	RAW	<0.30	21.7	90.5	8.01
2016-10-03 08:50	2016-10-04 09:25		mississippi river	Raw	TP01	RAW	<0.30	18.3		7.86
2016-10-10 08:45	2016-10-11 09:30		mississippi river	Raw	TP01	RAW	<0.30		33.2	8.16
2016-10-17 09:00	2016-10-18 09:15		mississippi river	Raw	TP01	RAW	<0.30	17.8	32.8	8.11
2016-10-24 08:30	2016-10-25 09:15		mississippi river	Raw	TP01	RAW	<0.30	17.2	34	8.36
2016-10-31 08:35	2016-11-01 09:30		mississippi river	Raw	TP01	RAW	<0.30	14.4	14.6	8.32
2016-11-07 08:15	2016-11-08 09:00		mississippi river	Raw	TP01	RAW	<0.30	15.0	29.5	8.27
2016-11-14 08:45	2016-11-15 12:28		mississippi river	Raw	TP01	RAW	<0.30	14.4	16.3	8.45
2016-11-21 08:30	2016-11-22 09:00		mississippi river	Raw	TP01	RAW	<0.30	14.4	20.1	8.56

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-11-28 08:30	2016-11-29 08:55		mississippi river	Raw	TP01	RAW	<0.30	13.9	19.1	8.43
2016-12-05 09:00	2016-12-06 09:30		mississippi river	Raw	TP01	RAW	<0.30	5.3	15.6	8.47
2016-12-12 08:45	2016-12-13 09:15		mississippi river	Raw	TP01	RAW	<0.30	6.1	21.4	8.44
2016-12-19 10:45	2016-12-20 09:45		mississippi river	Raw	TP01	RAW	<0.30	5.6	8.96	8.45
2016-12-27 08:30	2016-12-28 09:05		mississippi river	Raw	TP01	RAW	<0.30	4.4	9.71	8.37
2017-01-03 08:15	2017-01-04 09:40		mississippi river	Raw	TP01	RAW	<0.30	6.1	11.3	8.22
2017-01-09 08:30	2017-01-10 09:15		mississippi river	Raw	TP01	RAW	<0.30	3.9	9.88	8.08
2017-01-16 10:00	2017-01-17 09:00	B	mississippi river	Raw	TP01	RAW	<0.30	3.9	5.44	8.19
2017-01-23 08:50	2017-01-24 09:15	A	mississippi river	Raw	TP01	RAW	<0.30	4.4	115	7.91
2017-01-30 08:45	2017-01-31 09:30		mississippi river	Raw	TP01	RAW	<0.30	3.3	41.5	8
2017-02-06 08:40	2017-02-07 15:50		mississippi river	Raw	TP01	RAW	<0.30	3.3	15.3	8.24
2017-02-13 08:30	2017-02-14 09:30		mississippi river	Raw	TP01	RAW	<0.30	2.8	16.9	8.16
2017-02-20 08:15	2017-02-21 09:30		mississippi river	Raw	TP01	RAW	<0.30	5.6	19.8	8.12
2017-02-27 08:20	2017-02-28 09:30		mississippi river	Raw	TP01	RAW	<0.30	4.4	47.8	8.07
2017-03-06 08:15	2017-03-07 10:10		mississippi river	Raw	TP01	RAW	<0.30	7.8	35.9	8.03
2017-03-13 08:40	2017-03-14 09:25	B	mississippi river	Raw	TP01	RAW	<0.30	6.1	34	8.26
2017-03-20 11:30	2017-03-21 09:10		mississippi river	Raw	TP01	RAW	<0.30	7.8	34	7.3
2017-03-27 10:30	2017-03-28 09:30		mississippi river	Raw	TP01	RAW	<0.30	5.0	21.3	8.42
2017-04-03 12:50	2017-04-04 09:20		mississippi river	Raw	TP01	RAW	<0.30	8.9	55.6	8.25
2017-04-10 08:30	2017-04-11 09:10	B	mississippi river	Raw	TP01	RAW	<0.30	14.4	38.6	8.4
2017-04-17 08:30	2017-04-18 09:10		mississippi river	Raw	TP01	RAW	<0.30	16.7	20.4	8.55
2017-04-24 09:00	2017-04-25 09:30		mississippi river	Raw	TP01	RAW	<0.30	15.6	42.3	8.19
2017-05-01 08:30	2017-05-02 09:30		mississippi river	Raw	TP01	RAW	<0.30	12.2	39.4	8.1
2017-05-08 09:00	2017-05-09 09:25		mississippi river	Raw	TP01	RAW	<0.30	15.6	36.5	8.3
2017-05-15 08:30	2017-05-16 09:30		mississippi river	Raw	TP01	RAW	<0.30	18.9	42.5	8.15
2017-05-22 08:30	2017-05-23 09:45		mississippi river	Raw	TP01	RAW	<0.30	17.8	118	8.24
2017-05-30 08:30	2017-05-31 09:23		mississippi river	Raw	TP01	RAW	<0.30	17.8	38.3	7.9
2017-06-05 08:30	2017-06-06 09:30		mississippi river	Raw	TP01	RAW	<0.30	23.3	32.7	8.31
2017-06-12 08:45	2017-06-14 09:20	A	mississippi river	Raw	TP01	RAW	<0.30	25.6	31.4	8.35

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-06-19 08:30	2017-06-20 09:15		mississippi river	Raw	TP01	RAW	<0.30	27.8	77.6	8.18
2017-06-26 08:30	2017-06-27 09:15		mississippi river	Raw	TP01	RAW	<0.30	24.4	64.3	8.29
Cedar Rapids Water Department (IA5715093)										
2016-07-11 11:25	2016-07-12 09:05		nw plant hydrant before aeration	Raw	TP02	RAW	<0.30			
2016-07-11 11:45	2016-07-12 09:05		j ave before aeration	Raw	TP01	RAW	<0.30			
2016-07-18 13:00	2016-07-19 12:15		raw tap	Raw	TP01	RAW	<0.30	19.7	0.28	6.97
2016-07-18 13:50	2016-07-19 12:15		raw hydrant	Raw	TP02	RAW	<0.30	19.8	1.78	6.87
2016-07-25 09:40	2016-07-25 10:55		j ave raw water tap	Raw	TP01	RAW	<0.30	20.3	0.214	7.13
2016-07-25 10:05	2016-07-25 10:55		nw plant raw hyd	Raw	TP02	RAW	<0.30	21.0	0.658	7.18
2016-08-01 09:42	2016-08-01 11:37		j ave raw tap	Raw	TP01	RAW	<0.30	17.3	0.283	7.53
2016-08-01 10:03	2016-08-01 11:37		nw raw hydrant	Raw	TP02	RAW	<0.30	21.0	0.344	7.5
2016-08-08 11:22	2016-08-08 12:47		raw water tap	Raw	TP01	RAW	<0.30	18.0	0.523	7.08
2016-08-08 11:43	2016-08-08 12:47		raw water hyd	Raw	TP02	RAW	<0.30	18.3	0.633	7.08
2016-08-15 10:05	2016-08-15 11:30		j ave raw tap	Raw	TP01	RAW	<0.30	17.5	0.42	7.67
2016-08-15 10:35	2016-08-15 11:30		nw raw hydrant	Raw	TP02	RAW	<0.30	21.4	0.413	7.13
2016-08-22 09:34	2016-08-22 10:47		j ave raw tap	Raw	TP01	RAW	<0.30	18.8	0.311	7.6
2016-08-22 09:52	2016-08-22 10:47	A	nw plant raw hydrant	Raw	TP02	RAW	<0.30	21.4	0.483	7.48
2016-08-29 10:00	2016-08-29 11:47		j ave raw	Raw	TP01	RAW	<0.30	19.4	0.148	7.57
2016-08-29 10:20	2016-08-29 11:47		nw plant raw hyd	Raw	TP02	RAW	<0.30	22.4	0.754	7.46
2016-09-06 09:20	2016-09-06 11:25		j ave raw tap	Raw	TP01	RAW	<0.30	19.2	0.655	7.74
2016-09-06 09:42	2016-09-06 11:25		nw plant raw hyd	Raw	TP02	RAW	<0.30	22.5	0.818	7.77
2016-09-12 08:55	2016-09-12 12:20		plant tap	Raw	TP01	RAW	<0.30	21.4	0.217	7.09
2016-09-12 10:00	2016-09-12 12:20		hydrant	Raw	TP02	RAW	<0.30	21.3	0.656	7.15
2016-09-19 11:10	2016-09-19 12:34		j ave raw	Raw	TP01	RAW	<0.30	18.9	0.626	7.69
2016-09-19 11:35	2016-09-19 12:34		nw raw hyd	Raw	TP02	RAW	<0.30	19.8	0.906	7.57
2016-09-26 11:30	2016-09-27 09:23		j raw	Raw	TP01	RAW	<0.30	19.6	0.138	6.97
2016-09-26 12:15	2016-09-27 09:23		nw raw	Raw	TP02	RAW	<0.30	19.6	10.7	7.04
2016-10-03 11:40	2016-10-04 09:25		j ave raw	Raw	TP01	RAW	<0.30	19.9	0.205	7.08
2016-10-03 12:05	2016-10-04 09:25		nw raw	Raw	TP02	RAW	<0.30	20.4	1.05	6.9

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-10-10 08:16	2016-10-10 11:56		j raw	Raw	TP01	RAW	<0.30	19.5	0.192	7.17
2016-10-10 10:05	2016-10-10 11:56		nw raw	Raw	TP02	RAW	<0.30	18.4	13.6	7.22
2016-10-17 13:05	2016-10-17 14:58		j raw	Raw	TP01	RAW	<0.30	19.4	0.164	7.14
2016-10-17 13:30	2016-10-17 14:58		nw raw	Raw	TP02	RAW	<0.30	18.5	0.631	6.99
2016-10-24 10:05	2016-10-25 09:15		j ave raw	Raw	TP01	RAW	<0.30	18.7	0.083	7.03
2016-10-24 10:50	2016-10-25 09:15		nw plant raw	Raw	TP02	RAW	<0.30	17.3	2.17	7.2
2016-10-31 11:10	2016-10-31 12:48		j plant raw	Raw	TP01	RAW	<0.30	18.1	0.484	6.91
2016-10-31 11:30	2016-10-31 12:48		nw plant raw	Raw	TP02	RAW	<0.30	16.8	1.37	7.02
2016-11-07 08:35	2016-11-07 10:45		raw water tap	Raw	TP01	RAW	<0.30	15.3	0.239	7.49
2016-11-07 09:25	2016-11-07 10:45		raw water hyd	Raw	TP02	RAW	<0.30	15.4	0.807	7.62
2016-11-14 12:42	2016-11-14 14:30		j raw	Raw	TP01	RAW	<0.30	17.3	0.122	6.89
2016-11-14 13:15	2016-11-14 14:30		nw raw hydrant	Raw	TP02	RAW	<0.30	16.5	0.422	7.03
2016-11-21 09:30	2016-11-21 11:40		j ave raw h20 tap	Raw	TP01	RAW	<0.30	14.1	0.581	7.57
2016-11-21 10:12	2016-11-21 11:40		nw raw hydrant	Raw	TP02	RAW	<0.30	12.2	1.43	7.64
2016-11-28 08:40	2016-11-28 13:31		j ave raw h2o tap	Raw	TP01	RAW	<0.30	13.7	0.369	7.66
2016-11-28 12:21	2016-11-28 13:31		nw raw h2o hyd	Raw	TP02	RAW	<0.30	11.8	1.58	7.72
2016-12-05 13:15	2016-12-05 14:55		j ave raw h2o tap	Raw	TP01	RAW	<0.30	12.6	0.238	7.31
2016-12-05 13:37	2016-12-05 14:55		nw raw h2o hyd	Raw	TP02	RAW	<0.30	11.5	0.94	7.61
2016-12-12 09:04	2016-12-12 12:35		j ave raw h2o tap	Raw	TP01	RAW	<0.30	12.5	0.386	7.42
2016-12-12 10:20	2016-12-12 12:35		nw raw water hyd	Raw	TP02	RAW	<0.30	9.1	1.21	7.65
2016-12-19 09:00	2016-12-19 10:39		j ave raw h2o tap	Raw	TP01	RAW	<0.30	11.4	0.247	7.6
2016-12-19 09:30	2016-12-19 10:39		nw plant raw hyd	Raw	TP02	RAW	<0.30	11.8	3.06	7.66
2016-12-27 08:45	2016-12-28 09:05		plant tap	Raw	TP01	RAW	<0.30	11.4	0.265	7.21
2016-12-27 10:55	2016-12-28 09:05		hydrant	Raw	TP02	RAW	<0.30	8.6	0.738	7.3
2017-01-02 08:55	2017-01-04 09:40		hydrant	Raw	TP01	RAW	<0.30	11.4	0.195	7.34
2017-01-02 12:15	2017-01-04 09:40		plant tap	Raw	TP02	RAW	<0.30	8.3	0.675	7.52
2017-01-09 10:40	2017-01-10 09:15		j raw before aeration	Raw	TP01	RAW	<0.30	9.7	0.425	6.97
2017-01-09 11:02	2017-01-10 09:15		nw raw hydrant	Raw	TP02	RAW	<0.30	8.1	0.952	7.13
2017-01-16 12:50	2017-01-17 10:30		raw	Raw	TP01	RAW	<0.30	9.5	0.112	7.03

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-01-16 13:15	2017-01-17 10:30		raw hydrant	Raw	TP02	RAW	<0.30	7.4	1.03	7.04
2017-01-23 14:20	2017-01-24 09:15		nw raw hydrant	Raw	TP02	RAW	<0.30	7.4	0.469	6.87
2017-01-23 14:38	2017-01-24 09:15		j ave raw meter building	Raw	TP01	RAW	<0.30	9.3	0.261	6.85
2017-01-30 10:20	2017-01-30 12:30		j ave raw h2o tap	Raw	TP01	RAW	<0.30	7.6	0.646	7.7
2017-01-30 10:45	2017-01-30 12:30		nw raw water hyd	Raw	TP02	RAW	<0.30	4.9	0.88	7.82
2017-02-06 09:42	2017-02-06 11:11		raw water tap	Raw	TP01	RAW	<0.30	7.9	0.623	7.56
2017-02-06 10:03	2017-02-06 11:11		raw water hyd	Raw	TP02	RAW	<0.30	7.5	1.53	7.71
2017-02-13 07:35	2017-02-13 09:20		raw water tap	Raw	TP01	RAW	<0.30	8.3	0.282	7.6
2017-02-13 08:00	2017-02-13 09:20		raw water hyd	Raw	TP02	RAW	<0.30	5.2	0.488	7.66
2017-02-21 09:00	2017-02-21 11:02	B	j ave raw tap	Raw	TP01	RAW	<0.30	8.5	0.585	7.37
2017-02-21 09:53	2017-02-21 11:02		nw raw hyd	Raw	TP02	RAW	<0.30	6.4	1.26	7.73
2017-02-27 11:09	2017-02-27 14:04		raw water tap	Raw	TP01	RAW	<0.30	7.4	1.08	7.46
2017-02-27 12:10	2017-02-27 14:04		nw raw water hyd	Raw	TP02	RAW	<0.30	6.4	1.33	7.54
2017-03-06 09:50	2017-03-06 13:40		j ave raw h2o tap	Raw	TP01	RAW	<0.30	6.8	0.444	7.51
2017-03-06 12:10	2017-03-06 13:40		nw plant raw h20 hyd	Raw	TP02	RAW	<0.30	6.7	1.72	7.66
2017-03-13 09:35	2017-03-13 11:41		j ave raw h20 tap	Raw	TP01	RAW	<0.30	6.2	188	7.65
2017-03-13 10:15	2017-03-13 11:41		nw raw water hyd	Raw	TP02	RAW	<0.30	5.3	0.7	7.77
2017-03-20 10:00	2017-03-20 11:40		j ave raw h20 tap	Raw	TP01	RAW	<0.30	6.1	3.02	7.64
2017-03-20 10:25	2017-03-20 11:40		nw raw h2o hyd	Raw	TP02	RAW	<0.30	6.2	2.06	7.69
2017-03-27 09:10	2017-03-27 11:48		j ave raw tap	Raw	TP01	RAW	<0.30	6.4	1.33	7.66
2017-03-27 09:35	2017-03-27 11:48		nw raw hyd	Raw	TP02	RAW	<0.30	6.8	1.78	7.63
2017-04-03 10:22	2017-04-03 11:50		j ave raw tap	Raw	TP01	RAW	<0.30	6.8	0.475	7.59
2017-04-03 10:43	2017-04-03 11:50		nw plant raw hyd	Raw	TP02	RAW	<0.30	6.1	0.979	7.59
2017-04-10 10:04	2017-04-10 12:05		j ave raw tap	Raw	TP01	RAW	<0.30	6.6	0.795	7.4
2017-04-10 10:35	2017-04-10 12:05		nw plant raw hyd	Raw	TP02	RAW	<0.30	8.9	0.802	7.65
2017-04-17 08:28	2017-04-18 09:10		j raw before aeration	Raw	TP01	RAW	<0.30	8.3	126	7.67
2017-04-17 09:10	2017-04-18 09:10		nw raw before aeration	Raw	TP02	RAW	<0.30	8	0.581	7.52
2017-04-24 09:20	2017-04-24 12:08		j ave	Raw	TP01	RAW	<0.30	9.4	0.48	7.38
2017-04-24 09:45	2017-04-24 12:08		nw ave	Raw	TP02	RAW	<0.30	8.6	0.67	7.58

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-05-01 10:06	2017-05-01 12:59		j ave raw tap	Raw	TP01	RAW	<0.30	10.1	0.63	7.53
2017-05-01 11:55	2017-05-01 12:59		nw raw hyd	Raw	TP02	RAW	<0.30	11.2	0.68	7.63
2017-05-08 10:15	2017-05-08 13:10		nw raw hydrant	Raw	TP02	RAW	<0.30	9.7	0.564	7.55
2017-05-08 10:35	2017-05-08 13:10		j ave raw tap	Raw	TP01	RAW	<0.30	8.9	0.246	7.61
2017-05-15 10:47	2017-05-15 13:07		j ave raw tap	Raw	TP01	RAW	<0.30	12.6	0.671	7.42
2017-05-15 11:20	2017-05-15 13:07		nw raw hydrant	Raw	TP02	RAW	<0.30	17.7	2.58	7.73
2017-05-22 09:25	2017-05-22 11:20		j ave raw tap	Raw	TP01	RAW	<0.30	12	0.333	7.43
2017-05-22 09:41	2017-05-22 11:20		nw raw hyd	Raw	TP02	RAW	<0.30	13.4	0.714	7.43
2017-05-30 10:25	2017-05-30 11:54		j ave raw tap	Raw	TP01	RAW	<0.30	12.4	0.473	7.45
2017-05-30 10:50	2017-05-30 11:54		nw raw hydrant	Raw	TP02	RAW	<0.30	14.3	0.938	7.57
2017-06-05 08:44	2017-06-05 10:20		j ave raw tap	Raw	TP01	RAW	<0.30	13.1	0.664	7.37
2017-06-05 09:15	2017-06-05 10:20		nw plant raw hyd	Raw	TP02	RAW	<0.30	13.5	0.8	7.48
2017-06-12 10:00	2017-06-12 11:58		j ave raw tap	Raw	TP01	RAW	<0.30	14	0.371	7.38
2017-06-12 10:20	2017-06-12 11:58		nw plant raw hyd	Raw	TP02	RAW	<0.30	14.7	0.55	7.55
2017-06-19 11:15	2017-06-19 13:25		j ave raw tap	Raw	TP01	RAW	<0.30	15	0.27	7.3
2017-06-19 11:33	2017-06-19 13:25		nw raw hyd	Raw	TP02	RAW	<0.30	15.8	0.331	7.29
2017-06-26 10:05	2017-06-26 11:49		j ave raw tap	Raw	TP01	RAW	<0.30	16.3	0.836	7.36
2017-06-26 10:25	2017-06-26 11:49		nw raw hyd	Raw	TP02	RAW	<0.30	17.6	0.52	7.44
Central Water System (IA3000099)										
2016-07-11 09:25	2016-07-11 10:46		raw sample tap	Raw	TP01	RAW	<0.30			
2016-07-18 10:10	2016-07-18 10:54		raw water sample tap	Raw	TP01	RAW	<0.30	20.9	1.39	7.69
2016-07-25 10:20	2016-07-25 11:08		raw sample tap	Raw	TP01	RAW	<0.30	21.8	1.1	7.61
2016-08-01 09:00	2016-08-01 11:25		raw water sample tap	Raw	TP01	RAW	<0.30	22.1	1.07	7.52
2016-08-08 09:05	2016-08-08 09:52		raw water sample tap	Raw	TP01	RAW	<0.30	22.5	1.17	7.58
2016-08-15 09:10	2016-08-15 09:44	A	raw water sample tap	Raw	TP01	RAW	<0.30	22.5	1.71	7.66
2016-08-22 09:00	2016-08-22 09:38		raw water sample tap	Raw	TP01	RAW	<0.30	22.8	1.4	8.25
2016-08-29 09:20	2016-08-29 10:17		raw water sample tap	Raw	TP01	RAW	<0.30	22.1	1.42	8.05
2016-09-06 09:45	2016-09-06 10:16		raw water sample tap	Raw	TP01	RAW	<0.30	21.5	1.54	8.27
2016-09-12 09:00	2016-09-12 10:08		raw sample tap	Raw	TP01	RAW	<0.30	20.7	1.38	8.38

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-09-19 09:30	2016-09-19 10:04		raw water sample tap	Raw	TP01	RAW	<0.30	19.9	1.35	8.25
2016-09-26 09:20	2016-09-26 10:55		raw water sample tap	Raw	TP01	RAW	<0.30	19.7	1.02	8.24
2016-10-03 10:15	2016-10-03 11:43		raw water sample tap	Raw	TP01	RAW	<0.30	18.9	1.18	8.34
2016-10-10 09:45	2016-10-10 10:47	A	raw water sample tap	Raw	TP01	RAW	<0.30	16.8	1.43	8.25
2016-10-17 10:00	2016-10-17 11:30		raw water sample tap	Raw	TP01	RAW	<0.30	15.9	1.52	8.13
2016-10-24 10:00	2016-10-24 11:09		raw water sample tap	Raw	TP01	RAW	<0.30	15.0	1.27	8.01
2016-10-31 10:20	2016-10-31 11:43		raw water sample tap	Raw	TP01	RAW	<0.30	13.8	0.98	8.06
2016-11-07 10:20	2016-11-07 11:39		raw water sample tap	Raw	TP01	RAW	<0.30	13.3	0.75	7.96
2016-11-14 10:45	2016-11-14 11:28		raw sample tap	Raw	TP01	RAW	<0.30	12.7	0.7	8.1
2016-11-21 10:15	2016-11-21 12:08		raw sample tap	Raw	TP01	RAW	<0.30	10.6	0.79	8.17
2016-11-28 08:55	2016-11-28 10:45		raw sample tap	Raw	TP01	RAW	<0.30	9.3	0.53	8.1
2016-12-05 11:05	2016-12-05 12:07		central water system raw tap	Raw	TP01	RAW	<0.30	8.3	0.49	8.08
2016-12-12 10:20	2016-12-12 11:26		raw sample tap	Raw	TP01	RAW	<0.30	5.4	0.41	8.1
2016-12-19 10:00	2016-12-19 10:31	B	raw sample tap	Raw	TP01	RAW	<0.30	3.7	0.48	8.33
2016-12-27 10:15	2016-12-28 09:05		raw sample tap	Raw	TP01	RAW	<0.30	4.0	0.4	8.17
2017-01-03 10:45	2017-01-03 11:38		raw sample tap	Raw	TP01	RAW	<0.30	3.9	0.35	8.35
2017-01-09 11:15	2017-01-09 11:49		raw sample tap	Raw	TP01	RAW	<0.30	3.9	0.39	8.31
2017-01-17 10:51	2017-01-17 11:39	A	raw sample tap	Raw	TP01	RAW	<0.30	3.5	0.44	8.31
2017-01-23 09:45	2017-01-23 10:28		raw water sample tap	Raw	TP01	RAW	<0.30	3.7	0.62	8.35
2017-01-30 09:45	2017-01-30 10:39		raw sample tap	Raw	TP01	RAW	<0.30	3.6	0.48	8.39
2017-02-06 10:00	2017-02-06 11:42		raw sample tap	Raw	TP01	RAW	<0.30	3.7	0.65	8.4
2017-02-13 10:40	2017-02-13 11:29		raw sample tap	Raw	TP01	RAW	<0.30	3.7	0.49	8.47
2017-02-20 10:45	2017-02-20 12:44		raw sample tap	Raw	TP01	RAW	<0.30	3.9	0.66	8.43
2017-02-27 10:40	2017-02-27 11:39		raw sample tap	Raw	TP01	RAW	<0.30	4.2	0.73	8.38
2017-03-06 10:40	2017-03-06 11:42		raw sample tap	Raw	TP01	RAW	<0.30	4.2	0.96	8.44
2017-03-13 10:20	2017-03-13 11:07		raw sample tap	Raw	TP01	RAW	<0.30	3.9	1	8.36
2017-03-20 10:50	2017-03-20 11:36		raw sample tap	Raw	TP01	RAW	<0.30	3.6	0.93	8.44
2017-03-27 08:30	2017-03-27 10:32		raw sample tap	Raw	TP01	RAW	<0.30	4.1	0.92	8.43
2017-04-03 09:30	2017-04-03 10:52		raw sample tap	Raw	TP01	RAW	<0.30	9.9	0.69	8.41

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-04-10 10:10	2017-04-10 11:17		raw sample tap	Raw	TP01	RAW	<0.30	6.0	0.52	8.38
2017-04-17 10:40	2017-04-17 11:47		raw sample tap	Raw	TP01	RAW	<0.30	7.1	0.62	8.35
2017-04-24 09:15	2017-04-24 10:20		raw sample tap	Raw	TP01	RAW	<0.30	8.7	0.42	8.36
2017-05-01 10:35	2017-05-01 11:15		raw sample tap	Raw	TP01	RAW	<0.30	8.4	0.41	8.29
2017-05-08 09:30	2017-05-08 10:55		raw sample tap	Raw	TP01	RAW	<0.30	9.5	0.3	8.24
2017-05-15 09:15	2017-05-15 11:17		raw sample tap	Raw	TP01	RAW	<0.30	11.4	0.37	8.19
2017-05-22 10:25	2017-05-22 11:30		raw sample tap	Raw	TP01	RAW	<0.30	12	0.43	8.29
2017-05-30 09:25	2017-05-30 10:18		raw sample tap	Raw	TP01	RAW	<0.30	13.1	0.4	8.3
2017-06-05 09:55	2017-06-05 10:51		raw sample tap	Raw	TP01	RAW	<0.30	14.3	0.49	8.16
2017-06-12 10:10	2017-06-12 12:05		raw sample tap	Raw	TP01	RAW	<0.30	16.2	0.43	8.18
2017-06-19 08:40	2017-06-19 10:11		raw sample tap	Raw	TP01	RAW	<0.30	17.4	0.48	8.06
2017-06-26 08:45	2017-06-26 10:16	D	raw sample tap	Raw	TP01	RAW	<0.30	17.4	0.58	8.05
Chariton Municipal Water Works (IA5903011)										
2016-07-11 08:00	2016-07-12 09:05		25388 482nd st raw bldg ellis tap	Raw	TP01	RAW	<0.30			
2016-07-18 10:10	2016-07-19 09:15	A	chariton ia ellis tap	Raw	TP01	RAW	<0.30	23.3	31.5	7.53
2016-07-25 10:23	2016-07-26 09:20	A	raw inf	Raw	TP01	RAW	<0.30			
2016-08-01 07:45	2016-08-02 09:20	A	25388 482nd st raw bldg morris	Raw	TP01	RAW	<0.30	25.2	7.56	8.26
2016-08-08 09:15	2016-08-09 09:15	A	morris raw tap	Raw	TP01	RAW	<0.30	26.2		8
2016-08-15 10:00	2016-08-16 09:15		25388 482nd st, morris tap	Raw	TP01	RAW	<0.30	25.9	7.3	8.08
2016-08-22 09:50	2016-08-23 09:25		raw sample tap	Raw	TP01	RAW	<0.30	25.8	10.8	7.85
2016-08-29 10:29	2016-08-30 09:18	A	25388 482nd st raw tap morris	Raw	TP01	RAW	<0.30			
2016-09-06 11:39	2016-09-07 09:05	A	25388 482nd st raw tap	Raw	TP01	RAW	<0.30	24.7	18.2	8.22
2016-09-12 10:30	2016-09-13 09:05	A	25388 482nd st, chariton ia morris tap	Raw	TP01	RAW	<0.30	24.1	25.4	8.11
2016-09-19 09:55	2016-09-20 09:30		chariton water 25388 482nd st raw tap	Raw	TP01	RAW	<0.30	23.3	35.9	8.36
2016-09-26 08:30	2016-09-27 09:23		chariton water raw tap	Raw	TP01	RAW	<0.30	22.3	29.4	8.28
2016-10-03 10:15	2016-10-04 09:25		chariton water 25388 482nd st raw tap el	Raw	TP01	RAW	<0.30	21.4	14.5	8.35
2016-10-10 10:10	2016-10-11 09:30		raw inluent	Raw	TP01	RAW	<0.30	19.7		8.52
2016-10-17 10:00	2016-10-18 09:15		raw inff tap	Raw	TP01	RAW	<0.30	19.9		8.55

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-10-24 09:10	2016-10-25 09:15	C	raw influent ellis	Raw	TP01	RAW	0.5	17.0	17.2	8.46
2016-10-31 10:05	2016-11-01 09:30	A	sep sample tap	Finished	01	SEP01	<0.30	18.6	0.087	8.01
2016-10-31 10:05	2016-11-01 09:30	A	ellis raw tap	Raw	TP01	RAW	<0.30	18.6	14.8	8.33
2016-11-07 09:36	2016-11-08 09:00		chariton raw tap ellis	Raw	TP01	RAW	<0.30	16.1	20	7.93
2016-11-14 10:20	2016-11-15 09:35		raw bldg ellis tap	Raw	TP01	RAW	<0.30	13.6	13.7	8
2016-11-21 09:50	2016-11-22 09:00		25388 482nd st ellis tap	Raw	TP01	RAW	<0.30	13.8	15.8	8.03
2016-11-28 09:30	2016-11-29 08:55		25388 482nd st ellis tap	Raw	TP01	RAW	<0.30	12.3	15.9	8.02
2016-12-05 09:15	2016-12-06 09:30		25388 482nd st raw bldg ellis tap	Raw	TP01	RAW	<0.30	8.0	11	8.05
2016-12-12 08:26	2016-12-13 09:15		chariton water, raw tap	Raw	TP01	RAW	<0.30	5.9	9.65	7.92
2016-12-19 10:45	2016-12-20 10:10	B	25388 482nd st	Raw	TP01	RAW	<0.30	8.9	11.9	7.79
2017-01-03 08:50	2017-01-04 09:40		raw tap	Raw	TP01	RAW	<0.30	7.6	11.3	7.54
2017-01-09 09:28	2017-01-10 09:15		chariton water raw tap	Raw	TP01	RAW	<0.30	8.0	6.82	7.53
2017-01-16 11:00	2017-01-17 09:00		raw bldg ellis tap	Raw	TP01	RAW	<0.30	9.0	6.96	7.55
2017-01-23 09:32	2017-01-24 09:15		raw bldg ellis tap	Raw	TP01	RAW	<0.30	10.9	10.8	7.53
2017-01-30 08:45	2017-01-31 09:30		chariton water raw tap	Raw	TP01	RAW	<0.30	5.8	5.42	7.61
2017-02-06 08:08	2017-02-07 15:50		chariton water raw tap	Raw	TP01	RAW	<0.30	7.8	9.1	7.63
2017-02-14 06:00	2017-02-15 10:05		25388 482nd st raw tap	Raw	TP01	RAW	<0.30	11.1	11	7.9
2017-02-20 10:00	2017-02-21 09:30	B	raw bldg, ellis tap	Raw	TP01	RAW	<0.30	11.4	14.2	7.88
2017-02-28 13:10	2017-03-01 10:15		raw bldg ellis tap	Raw	TP01	RAW	<0.30	15.0	22.5	7.97
2017-03-06 10:39	2017-03-07 10:10		chariton water raw tap	Raw	TP01	RAW	<0.30	11.2	22.1	8.02
2017-03-20 09:45	2017-03-21 09:10		raw bldg morris tap	Raw	TP01	RAW	<0.30	11.3	5.1	8.03
2017-03-27 10:25	2017-03-28 09:30		raw bldg morris tap	Raw	TP01	RAW	<0.30	12.8	3.7	8.16
2017-04-10 09:00	2017-04-11 09:10		25388 482nd st	Raw	TP01	RAW	<0.30	13.7	21.6	7.83
2017-04-17 09:00	2017-04-18 09:10		25388 482nd st	Raw	TP01	RAW	<0.30	18.0	27.6	7.92
2017-05-08 07:42	2017-05-09 09:25		chariton water raw tap	Raw	TP01	RAW	<0.30	15.1	14.4	8.14
2017-05-15 10:45	2017-05-16 09:30	A	raw building	Raw	TP01	RAW	<0.30	20.5	8.69	8.19
2017-05-22 08:45	2017-05-23 09:45		raw water tap	Raw	TP01	RAW	<0.30	18.6	5.59	8.01
2017-05-30 07:30	2017-05-31 09:23		raw water tap	Raw	TP01	RAW	<0.30	19.6	8.69	8.1

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-06-05 07:00	2017-06-06 09:30		raw tap	Raw	TP01	RAW	<0.30	22.0	3.81	7.86
2017-06-12 06:30	2017-06-13 09:00	A	raw bldg morris tap	Raw	TP01	RAW	<0.30	24.3	7.55	8.23
2017-06-19 08:30	2017-06-20 09:15		raw tap	Raw	TP01	RAW	<0.30	24.5	6.6	8.38
2017-06-26 06:30	2017-06-27 09:15	A	raw building tap	Raw	TP01	RAW	<0.30	23.9	11.2	8.31
Clarinda Water Plant (IA7329029)										
2016-07-11 09:15	2016-07-12 09:05		701 n 1st st	Raw	TP01	RAW	<0.30			
2016-07-18 09:30	2016-07-19 09:15	A	701 n 1st st	Raw	TP01	RAW	<0.30	26.0	15	8.5
2016-07-25 11:30	2016-07-26 09:20	A	701 n 1st st	Raw	TP01	RAW	<0.30	28.0	14	8.7
2016-08-01 09:00	2016-08-02 09:20	A	701 n 1st st	Raw	TP01	RAW	<0.30	26.0	13	8.5
2016-08-08 08:30	2016-08-09 09:15	A	701 n 1st st	Raw	TP01	RAW	<0.30	26.0	13	8.7
2016-08-15 08:45	2016-08-16 09:15	A	701 n 1st st	Raw	TP01	RAW	<0.30	27.0	9	9
2016-08-22 08:00	2016-08-23 09:25		701 n 1st st	Raw	TP01	RAW	<0.30	26.0	12	8.9
2016-08-29 08:30	2016-08-30 09:18	A	701 n 1st st	Raw	TP01	RAW	<0.30	25.0	13	8.7
2016-09-06 09:00	2016-09-07 09:05		701 n 1st st	Raw	TP01	RAW	0.41	24.0	10	9.1
2016-09-12 10:45	2016-09-13 09:05	A	701 n 1st st	Raw	TP01	RAW	<0.30	23.0	8	8.1
2016-09-19 11:00	2016-09-20 09:30		701 north 1st	Raw	TP01	RAW	<0.30	23.0	6	8.4
2016-09-26 09:00	2016-09-27 09:23		701 n 1st st	Raw	TP01	RAW	<0.30	23.0	9	8.8
2016-10-03 09:00	2016-10-04 09:25	A	701 n 1st st	Raw	TP01	RAW	<0.30	20.0	11	8.9
2016-10-10 08:45	2016-10-11 09:30		701 n 1st st	Raw	TP01	RAW	<0.30	18.0	9	8.4
2016-10-17 08:45	2016-10-18 09:15		701 n 1st st	Raw	TP01	RAW	<0.30	17.0	12	8.5
2016-10-24 10:15	2016-10-25 09:15	A	701 n 1st st raw	Raw	TP01	RAW	0.38	16.0	7	8.7
2016-10-24 10:15	2016-10-25 09:15	A	701 n 1st st finished	Finished	02	02	<0.30			
2016-10-27 14:00	2016-10-28 10:15		701 n 1st st	Raw	TP01	RAW	<0.30	16.0	8	8.7
2016-10-27 14:00	2016-10-28 10:15		701 n 1st st	Finished	02	02	<0.30	17.0	0.02	8.4
2016-10-31 09:30	2016-11-01 09:30		701 n 1st st	Finished	02	02	<0.30	17.0	0.02	8.3
2016-10-31 09:45	2016-11-01 09:30		701 n 1st st	Raw	TP01	RAW	<0.30	16.0	5	8.8
2016-11-07 09:45	2016-11-08 09:00	A	701 n 1st st	Raw	TP01	RAW	<0.30	15.0	4	8.7
2016-11-07 09:45	2016-11-08 09:00	A	701 n 1st st	Finished	02	02	<0.30	16.0	0.02	8.2
Corning Municipal Water Utilities (IA0220075)										

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-07-11 08:30	2016-07-12 09:05		raw tap	Raw	TP01	TP01	<0.30			
2016-07-18 08:30	2016-07-19 09:15	A	raw tap	Raw	TP01	TP01	<0.30	22.0	19.9	8.1
2016-07-25 08:00	2016-07-26 09:20		raw tap	Raw	TP01	RAW	<0.30			
2016-08-01 08:30	2016-08-02 09:20		raw tap	Raw	TP01	RAW	<0.30	27.0	8.5	6.9
2016-08-08 09:20	2016-08-09 09:15	A	corning water plant	Raw	TP01	RAW	<0.30	24.3	8.9	8.5
2016-08-15 09:00	2016-08-16 09:15	A	raw tap	Raw	TP01	RAW	<0.30	24.4	12.7	7.9
2016-08-22 08:20	2016-08-23 09:25		raw tap	Raw	TP01	RAW	<0.30	23.0	19.5	8.1
2016-08-29 09:00	2016-08-30 09:18	A	corning water plant raw tap	Raw	TP01	RAW	<0.30	22.7	16.2	7.85
2016-09-06 07:30	2016-09-07 09:05	A	raw tap	Raw	TP01	RAW	<0.30	23.2	11.6	8.36
2016-09-12 08:15	2016-09-13 09:05		water plant raw tap	Raw	TP01	RAW	<0.30	23.7	7.6	8.1
2016-09-19 08:30	2016-09-20 09:30		corning wtp	Raw	TP01	RAW	<0.30	24.0	12	8.7
2016-09-26 07:55	2016-09-27 09:23		raw tap	Raw	TP01	RAW	<0.30	23.5	10.8	8.1
2016-10-03 08:35	2016-10-05 09:10	A	raw tap	Raw	TP01	RAW	<0.30	21.0	16.9	8.5
2016-10-10 08:30	2016-10-11 12:04		corning water plant raw tap	Raw	TP01	RAW	<0.30	19.7	12.4	8.09
2016-10-17 09:10	2016-10-18 09:15		corning water plant raw tap	Raw	TP01	RAW	0.41	19.9	16.9	8.28
2016-10-24 08:20	2016-10-25 09:15	A	raw tap at corning w&p	Raw	TP01	RAW	0.39	17.6	17.9	8.35
2016-10-24 08:20	2016-10-25 09:15	A	finish tap at corning w&p	Finished	02	02	<0.30	17.8	0.04	8.34
2016-10-27 14:00	2016-10-28 09:10	B	corning w&p raw tap	Raw	TP01	RAW	0.39	17.6	19.2	8.33
2016-10-27 14:00	2016-10-28 09:10	B	corning w&p finish tap	Finished	02	02	<0.30	17.3	0.038	8.27
2016-10-28 14:00	2016-11-01 09:30	A	corning icaria	Raw	IN03	IN03	<0.30	20.5	46.6	8.42
2016-10-28 14:15	2016-11-01 09:30	A	corning reservoir	Raw	IN02	IN02	<0.30	19.7	12.2	8.56
2016-10-28 14:30	2016-11-01 09:30	A	lake binder	Raw	IN01	IN01	0.49	20.5	20.8	8.49
2016-10-28 14:45	2016-11-01 09:30	A	corning clarifier	Raw	TP02	TP02	<0.30	19.8	0.39	7.91
2016-10-31 09:45	2016-11-01 09:30	A	corning wtp raw tap	Raw	TP01	RAW	<0.30	17.5	16.6	8.04
2016-10-31 09:45	2016-11-01 09:30	A	corning wtp finish tap	Finished	02	02	<0.30	17.2	0.036	8.22
2016-11-07 09:45	2016-11-08 09:00		corning wtp raw tap	Raw	TP01	RAW	<0.30	17.7	20.2	8.15
2016-11-14 09:15	2016-11-15 09:35		corning wtp raw tap	Raw	TP01	RAW	<0.30	15.5	7.4	7.98
2016-11-21 10:15	2016-11-22 09:00		raw tap	Raw	TP01	RAW	<0.30	17.0	11.5	8.7
2016-11-28 09:45	2016-11-29 08:55		corning wtp raw tap	Raw	TP01	RAW	<0.30	13.3	9.6	8.16

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-12-05 13:30	2016-12-06 09:30		raw tap	Raw	TP01	RAW	<0.30	12.5	8.6	8.5
2016-12-12 09:20	2016-12-13 09:15		raw tap	Raw	TP01	RAW	<0.30	5.0	8	7.5
2016-12-19 10:00	2016-12-20 10:10		corning wtp raw tap	Raw	TP01	RAW	<0.30	11.9	9.4	8.12
2016-12-27 09:15	2016-12-28 09:05		corning wtp raw tap	Raw	TP01	RAW	<0.30			
2017-01-03 08:30	2017-01-04 09:40		corning wtp raw tap	Raw	TP01	RAW	<0.30	9.2	6.9	8.25
2017-01-09 08:50	2017-01-10 09:15	B	raw tap	Raw	TP01	RAW	<0.30	10.0	5.6	8.2
2017-01-17 10:00	2017-01-18 09:00		raw tap	Raw	TP01	RAW	<0.30	10.0	9	8
2017-01-23 10:00	2017-01-24 09:15	A	corning wtp raw tap	Raw	TP01	RAW	<0.30	7.8	5.9	7.86
2017-01-30 09:45	2017-01-31 09:30	C	corning wtp raw tap	Raw	TP01	RAW	<0.30	7.6	5.7	7.74
2017-02-06 09:15	2017-02-07 15:50		corning wtp raw tap	Raw	TP01	RAW	<0.30	8.4	4.4	7.79
2017-02-13 09:30	2017-02-14 09:30		corning wtp raw tap	Raw	TP01	RAW	<0.30	7.8	5.7	7.5
2017-02-21 08:30	2017-02-22 09:25		corning wtp raw tap	Raw	TP01	RAW	<0.30	9.0	7.3	8
2017-02-27 08:00	2017-03-01 10:15		corning wtp raw tap	Raw	TP01	RAW	<0.30	8.0	4.6	7.9
2017-03-06 09:00	2017-03-07 10:10		corning wtp raw tap	Raw	TP01	RAW	<0.30	9.5	4.7	8.01
2017-03-13 09:45	2017-03-14 09:25		corning wtp raw tap	Raw	TP01	RAW	<0.30	8.0	5.5	8
2017-03-20 09:30	2017-03-21 09:10		corning wtp raw tap	Raw	TP01	RAW	<0.30	11.9	5.08	8.22
2017-03-27 08:45	2017-03-28 09:30		corning wtp raw tap	Raw	TP01	RAW	<0.30	11.1	3.76	8.26
2017-04-03 10:00	2017-04-04 09:20		corning wtp raw tap	Raw	TP01	RAW	<0.30	11.8	8.9	8.26
2017-04-10 09:15	2017-04-11 09:10		corning wtp raw tap	Raw	TP01	RAW	<0.30	15.0	7.2	8.3
2017-04-17 08:05	2017-04-18 09:10		raw tap	Raw	TP01	RAW	<0.30	17.6	4.4	8.6
2017-04-24 08:45	2017-04-25 09:30		raw tap	Raw	TP01	RAW	<0.30	17.0	5	8.4
2017-05-01 08:00	2017-05-02 09:30		corning wtp raw tap	Raw	TP01	RAW	<0.30	12.0	7.4	8
2017-05-08 08:45	2017-05-09 09:25		raw tap	Raw	TP01	RAW	<0.30	18.0	5.1	8.8
2017-05-15 09:20	2017-05-16 09:30	A	raw tap	Raw	TP01	RAW	<0.30	20.0	4.1	8.9
2017-05-22 08:05	2017-05-23 09:45		raw tap	Raw	TP01	RAW	<0.30	18.0	5.4	8.5
2017-05-30 08:00	2017-05-31 09:23		corning wtp raw tap	Raw	TP01	RAW	<0.30	21.0	4.7	8.2
2017-06-05 09:00	2017-06-06 09:30	A	raw tap	Raw	TP01	RAW	<0.30	22.0	3.6	8.7
2017-06-12 08:20	2017-06-13 09:00	A, B	corning wtp raw tap	Raw	TP01	RAW	<0.30	26.0	5.4	7.9
2017-06-19 08:55	2017-06-20 09:15		raw tap	Raw	TP01	RAW	<0.30	24.0	5.4	8.4

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-06-26 08:35	2017-06-27 09:15		raw tap	Raw	TP01	RAW	<0.30	23.0	5.8	8.8
Council Bluffs Water Works (IA7820080)										
2016-07-11 12:15	2016-07-12 09:05		tp01 sep	Raw	TP01	RAW	<0.30			
2016-07-18 07:45	2016-07-19 09:15		tp01 sep	Raw	TP01	RAW	<0.30	25.8	106	8.22
2016-07-25 07:40	2016-07-26 09:20	A	source entry point raw	Raw	TP01	RAW	<0.30	29.0	33	8.21
2016-08-01 07:50	2016-08-02 09:20	A	tp01 raw	Raw	TP01	RAW	<0.30	27.0	55	8.34
2016-08-08 12:20	2016-08-09 09:15	A	tp01 raw	Raw	TP01	RAW	<0.30	26.8	24	8.34
2016-08-15 07:30	2016-08-16 09:15		tp01 raw	Raw	TP01	RAW	<0.30	26.2	42	8.36
2016-08-22 07:50	2016-08-23 09:25		tp01 raw	Raw	TP01	RAW	<0.30	24.5	43	8.45**
2016-08-29 11:25	2016-08-30 09:18		tp01 raw	Raw	TP01	RAW	<0.30	24.5	36	8.41
2016-09-06 07:45	2016-09-07 09:05	A	tp01 raw	Raw	TP01	RAW	<0.30	25.6	30	8.35
2016-09-12 10:00	2016-09-13 09:05		tp01 raw	Raw	TP01	RAW	<0.30	21.0	53	8.21
2016-09-19 07:40	2016-09-20 09:30		tp01 raw	Raw	TP01	RAW	<0.30	21.3	85	8.27
2016-09-26 07:40	2016-09-27 09:23		tp01 raw	Raw	TP01	RAW	<0.30	21.3	113	8.53
2016-10-03 07:45	2016-10-04 09:25		tp01 raw	Raw	TP01	RAW	<0.30	18.9	34	8.46
2016-10-10 08:20	2016-10-11 09:30		river raw	Raw	TP01	RAW	<0.30	18.6	63	8.39
2016-10-17 07:45	2016-10-19 09:14	A	tp01 raw	Raw	TP01	RAW	<0.30	15.5	36	8.33
2016-10-24 07:25	2016-10-25 09:15		tp01 raw	Raw	TP01	RAW	<0.30	13.5	24	8.49
2016-10-31 13:45	2016-11-01 09:30		tp01 raw	Raw	TP01	RAW	<0.30	14.8	26	8.66
2016-11-07 07:25	2016-11-08 09:00	A	tp01 raw	Raw	TP01	RAW	<0.30	15.3	16	8.37
2016-11-14 07:50	2016-11-15 09:35		tp01 raw	Raw	TP01	RAW	<0.30	10.0	19	8.53
2016-11-21 07:30	2016-11-22 09:00		tp01 raw	Raw	TP01	RAW	<0.30	7.3	19	8.56
2016-11-28 07:55	2016-11-29 08:55	A	tp01 raw	Raw	TP01	RAW	<0.30	5.9	21	8.42
2016-12-05 07:55	2016-12-06 09:30		tp01 raw	Raw	TP01	RAW	<0.30	4.0	33	8.54**
2016-12-12 07:40	2016-12-13 09:15		tp01 raw	Raw	TP01	RAW	<0.30	0.5	22	8.23
2016-12-19 07:45	2016-12-20 10:10		tp01 raw	Raw	TP01	RAW	<0.30	0.3	9	8.2
2016-12-27 08:20	2016-12-28 09:05		tp01 raw	Raw	TP01	RAW	<0.30	0.4	261	8.39
2017-01-03 08:15	2017-01-04 09:40		tp01 raw	Raw	TP01	RAW	<0.30	0.4	24	8.78
2017-01-09 07:30	2017-01-10 09:15		tp01 raw	Raw	TP01	RAW	<0.30	0.3	10	8.19**

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-01-17 08:00	2017-01-18 09:00		tp01 raw	Raw	TP01	RAW	<0.30	0.6	32	8.29**
2017-01-23 07:55	2017-01-24 09:15		tp01 raw	Raw	TP01	RAW	<0.30	1.6	71	8.41
2017-01-30 07:50	2017-01-31 09:30		tp01 raw	Raw	TP01	RAW	<0.30	0.5	16	8.26
2017-02-06 08:05	2017-02-07 15:50		tp01 raw	Raw	TP01	RAW	<0.30	0.1	15	8.28
2017-02-13 08:00	2017-02-14 09:30		tp01 raw	Raw	TP01	RAW	<0.30	1.0	94	8.24
2017-02-21 08:10	2017-02-22 09:25		tp01 raw	Raw	TP01	RAW	<0.30	4.9	70	8.21
2017-02-27 09:40	2017-02-28 09:30		tp01 raw	Raw	TP01	RAW	<0.30	1.4	57	8.28
2017-03-06 08:15	2017-03-07 10:10		tp01 raw	Raw	TP01	RAW	<0.30	1.0	38	8.37
2017-03-20 08:40	2017-03-21 09:10		tp01 raw	Raw	TP01	RAW	<0.30	7.5	34	8.26
2017-03-27 08:40	2017-03-28 09:30		tp01 raw	Raw	TP01	RAW	<0.30	6.3	34	8.3
2017-04-03 08:40	2017-04-04 09:20		tp01 raw	Raw	TP01	RAW	<0.30	8.6	33	8.39
2017-04-10 08:00	2017-04-11 09:10		tp01 raw	Raw	TP01	RAW	<0.30	12.2	25	8.45
2017-04-17 07:40	2017-04-18 09:10		tp01 raw	Raw	TP01	RAW	<0.30	13.7	45	8.3
2017-04-24 08:00	2017-04-25 09:30		tp01 raw	Raw	TP01	RAW	<0.30	15.4	38	8.43
2017-05-01 08:15	2017-05-02 09:30		tp01 raw	Raw	TP01	RAW	<0.30	8.1	28	8.32
2017-05-09 09:15	2017-05-10 09:18	B	tp01 raw	Raw	TP01	RAW	<0.30	17.5	54	8.33
2017-05-15 08:00	2017-05-16 09:30		tp01 raw	Raw	TP01	RAW	<0.30	18.5	32	8.39
2017-05-22 08:20	2017-05-23 09:45		tp01 raw	Raw	TP01	RAW	<0.30	14.6	300	8.2
2017-05-30 08:00	2017-05-31 09:23		tp01 raw	Raw	TP01	RAW	<0.30	17.3	51	8.33
2017-06-05 08:20	2017-06-06 09:30	B	tp01 raw	Raw	TP01	RAW	<0.30	23.9	53	8.37
2017-06-12 08:20	2017-06-13 09:00		tp01 raw	Raw	TP01	RAW	<0.30	24.5	33	8.43
2017-06-19 07:24	2017-06-20 09:15		tp01 raw	Raw	TP01	RAW	<0.30	25.8	58	8.31
2017-06-26 08:40	2017-06-27 09:15		tp01 raw	Raw	TP01	RAW	<0.30	20.5	40	8.39
Creston Water Supply (IA8816089)										
2016-07-11 08:25	2016-07-12 09:05		3 mile intake	Raw	TP01	RAW	0.32			
2016-07-18 12:35	2016-07-19 09:15		3 mile intake	Raw	TP01	RAW	0.42	25.6	6.23	8.35
2016-07-18 12:55	2016-07-19 09:15		creston-plant tap	Finished	02	02	<0.30	25.6		7.67
2016-07-25 12:25	2016-07-26 09:20		3 mile raw	Raw	TP01	RAW	0.62	27.0	8.23	8.72
2016-07-25 13:05	2016-07-26 09:20		plant tap	Finished	02	02	<0.30	27.0		7.74

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-08-01 12:40	2016-08-02 09:20		3 mile intake	Raw	TP01	RAW	<0.30	26.0	8.18	8.28
2016-08-01 13:05	2016-08-02 09:20		plant tap	Finished	02	02	<0.30	26.0		7.71
2016-08-08 12:25	2016-08-09 09:15	A	3 mile intake	Raw	TP01	RAW	0.75	26.0	12.4	8.49
2016-08-08 13:10	2016-08-09 09:15	A	plant tap	Finished	02	02	<0.30	26.0	0.065	7.57
2016-08-15 11:10	2016-08-16 09:15	A	plant tap	Finished	02	02	<0.30	26.0	0.066	7.55
2016-08-15 12:40	2016-08-16 09:15	A	3 mile intake	Raw	TP01	RAW	<0.30	26.0	7.74	8.24
2016-08-22 09:05	2016-08-23 09:25		plant tap	Finished	02	02	<0.30	26.0	0.062	7.48
2016-08-22 12:35	2016-08-23 09:25		3 mile intake	Raw	TP01	RAW	0.4	26.0	9.82	8.24
2016-08-29 10:20	2016-08-30 09:18		plant tap	Finished	02	02	<0.30	24.0	0.06	7.41
2016-08-29 11:05	2016-08-30 09:18		3 mile intake	Raw	TP01	RAW	<0.30	24.0	7.42	7.82
2016-09-06 07:40	2016-09-07 09:05		plant tap	Finished	02	02	<0.30	23.0	0.065	7.38
2016-09-06 08:15	2016-09-07 09:05		12 mile intake	Raw	TP01	RAW	1.0	23.0	5.17	7.88
2016-09-12 08:15	2016-09-13 09:00		plant tap	Finished	02	02	<0.30	23.0	0.066	7.38
2016-09-12 12:40	2016-09-13 09:00		12 mile intake	Raw	TP01	RAW	0.9	23.0	4.28	7.88
2016-09-19 07:55	2016-09-20 09:30		plant tap	Finished	02	02	<0.30	22.0	0.063	7.46
2016-09-19 09:15	2016-09-20 09:30		12 mile intake	Raw	TP01	RAW	1.5	22.0	6.87	8.08
2016-09-26 09:00	2016-09-27 09:23		12 mile lake raw	Raw	TP01	RAW	2.5	23.0	6.26	8.32
2016-09-26 09:00	2016-09-27 09:23		plant tap finished	Finished	02	02	<0.30	23.0	0.071	7.48
2016-10-03 08:05	2016-10-04 09:25		12 mile intake	Raw	TP01	RAW	1.4	20.0	7.87	7.92
2016-10-03 08:45	2016-10-04 09:25		plant tap	Finished	02	02	<0.30	20.0	0.063	7.53
2016-10-10 11:10	2016-10-11 09:30		12 mile intake	Raw	TP01	RAW	3.4	18.0	7.83	8.04
2016-10-10 11:35	2016-10-11 09:30		plant tap	Finished	02	02	<0.30	18.0	0.061	7.62
2016-10-17 07:40	2016-10-18 09:15		12 mile intake	Raw	TP01	RAW	2.4	17.0	6.63	8.15
2016-10-17 08:20	2016-10-18 09:15		plant tap	Finished	02	02	<0.30	17.0	0.063	7.73
2016-10-24 08:15	2016-10-25 09:15		12 mile intake	Raw	TP01	RAW	4.5	16.0	6.73	8.24
2016-10-24 08:35	2016-10-25 09:15		plant tap	Finished	02	02	<0.30	16.0	0.048	7.77
2016-10-31 08:20	2016-11-01 09:30		12 mile intake	Raw	TP01	RAW	3	16.0	8.24	8.36
2016-10-31 08:55	2016-11-01 09:30		plant tap	Finished	02	02	<0.30	16.0	0.052	7.72
2016-11-07 07:45	2016-11-08 09:00		12 mile intake	Raw	TP01	RAW	2.7	15.0	7.45	8.43

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-11-07 08:15	2016-11-08 09:00		plant tap	Finished	02	02	<0.30	15.0	0.058	7.9
2016-11-14 07:45	2016-11-15 09:35		12 mile intake	Raw	TP01	RAW	2.1	13.0	4.76	8.29
2016-11-14 08:15	2016-11-15 09:35		plant tap	Finished	02	02	<0.30	13.0	0.06	7.96
2016-11-21 07:15	2016-11-22 09:00		plant tap	Finished	02	02	<0.30	10.0	0.051	7.94
2016-11-21 07:40	2016-11-22 09:00		12 mile intake	Raw	TP01	RAW	0.69	10.0	3.16	8.34
2016-11-28 07:45	2016-11-29 08:55		12 mile intake	Raw	TP01	RAW	<0.30	8.0	2.44	8.28
2016-11-28 09:15	2016-11-29 08:55		plant tap	Finished	02	02	<0.30	8.0	0.046	8.02
2016-12-05 07:45	2016-12-06 09:30		12 mile intake	Raw	TP01	RAW	<0.30	6.0	1.74	8.19
2016-12-12 08:05	2016-12-13 09:15		12 mile intake	Raw	TP01	RAW	<0.30	2.0	1.39	8.47
2016-12-19 07:35	2016-12-20 10:10		12 mile intake	Raw	TP01	RAW	<0.30	2.0	1.26	8.45
2016-12-27 08:50	2016-12-28 09:05		12 mile intake	Raw	TP01	RAW	<0.30	3.0	1.02	8.37
2017-01-03 07:35	2017-01-04 09:40	A	12 mile intake	Raw	TP01	RAW	<0.30	3.0	1.14	8.21
2017-01-09 07:25	2017-01-10 09:15		12 mile intake	Raw	TP01	RAW	<0.30	3.0	1.29	8.22
2017-01-16 08:55	2017-01-17 08:58		12 mile intake	Raw	TP01	RAW	<0.30	4.0	1.54	8.28
2017-01-23 07:41	2017-01-24 09:15		12 mile intake	Raw	TP01	RAW	<0.30	4.0	1.64	8.32
2017-01-30 09:05	2017-01-31 09:30		12 mile intake	Raw	TP01	RAW	<0.30	4.0	2.14	8.46
2017-02-06 07:25	2017-02-07 15:50		12 mile intake	Raw	TP01	RAW	<0.30	4.0	2.62	8.38
2017-02-13 07:35	2017-02-14 09:30		12 mile intake	Raw	TP01	RAW	<0.30	3.0	2.07	8.37
2017-02-21 07:50	2017-02-22 09:25		12 mile intake	Raw	TP01	RAW	<0.30	6.0	2.16	8.38
2017-02-27 07:20	2017-02-28 09:30		12 mile intake	Raw	TP01	RAW	<0.30	5.0	2.66	8.42
2017-03-06 07:45	2017-03-07 10:10		12 mile intake	Raw	TP01	RAW	<0.30	7.0	3.21	8.52
2017-03-13 07:30	2017-03-14 09:25		1730 lark ave (12 mile)	Raw	TP01	RAW	<0.30	6.0	2.76	8.41
2017-03-20 07:30	2017-03-21 09:10		12 mile intake	Raw	TP01	RAW	<0.30	7.0	5.12	8.32
2017-03-27 07:15	2017-03-28 09:30		12 mile intake	Raw	TP01	RAW	<0.30	8.0	5.91	8.19
2017-04-03 07:25	2017-04-04 09:20		12 mile intake	Raw	TP01	RAW	<0.30	8.0	4.28	8.06
2017-04-10 07:30	2017-04-11 09:10		12 mile intake	Raw	TP01	RAW	<0.30	10.0	5.17	8.05
2017-04-17 07:45	2017-04-18 09:10		12 mile intake	Raw	TP01	RAW	<0.30	13.0	4.33	8.2
2017-04-24 07:25	2017-04-25 09:30		12 mile intake	Raw	TP01	RAW	<0.30	14.0	3.56	8.36
2017-05-02 07:20	2017-05-03 09:10		12 mile intake	Raw	TP01	RAW	0.35	12.0	3.97	8.74

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-05-08 07:35	2017-05-09 09:25		12 mile intake	Raw	TP01	RAW	<0.30	13.0	2.44	8.78
2017-05-15 08:15	2017-05-16 09:30		3 mile intake	Raw	TP01	RAW	<0.30	18.0	6.25	8.18
2017-05-22 08:50	2017-05-23 09:45		3 mile intake	Raw	TP01	RAW	<0.30	17.0	3.24	8.21
2017-05-30 08:50	2017-05-31 09:23		3 mile intake	Raw	TP01	RAW	<0.30	19.0	2.04	8.25
2017-06-05 07:40	2017-06-06 09:30		3 mile intake	Raw	TP01	RAW	<0.30	23.0	1.76	8.27
2017-06-12 08:00	2017-06-13 09:00		3 mile intake	Raw	TP01	RAW	<0.30	23.0	1.62	8.19
2017-06-19 07:40	2017-06-20 09:15		3 mile intake	Raw	TP01	RAW	<0.30	25.0	2.09	8.46
2017-06-26 08:00	2017-06-27 09:15		3 mile intake	Raw	TP01	RAW	<0.30	23.0	1.44	8.34
Greenfield Municipal Utilities (IA0140007)										
2016-07-11 09:15	2016-07-12 09:15		plant tap (raw)	Raw	TP01	RAW	<0.30			
2016-07-18 08:35	2016-07-19 09:15		plant tap raw	Raw	TP01	RAW	<0.30	17.6	4.12	7.58
2016-07-25 08:30	2016-07-26 09:20	A	water plant (sep)	Raw	TP01	RAW	<0.30	18.9	2.49	7.4
2016-08-01 10:10	2016-08-02 09:20	A	greenfield lake & wells	Raw	TP01	RAW	<0.30	19.9	36	7.54
2016-08-08 08:30	2016-08-09 09:15	A	water plant raw	Raw	TP01	RAW	<0.30	19.0	1.82	7.51
2016-08-15 09:15	2016-08-16 09:15		gmu waterplant (raw)	Raw	TP01	RAW	<0.30	19.7	2.83	7.54
2016-08-22 08:40	2016-08-23 09:25		gmu water plant (raw)	Raw	TP01	RAW	<0.30	19.6	3.43	7.57
2016-08-29 08:45	2016-08-30 09:18		waterplant raw	Raw	TP01	RAW	<0.30	19.9	3.89	7.51
2016-09-06 08:45	2016-09-07 09:05		waterplant (raw)	Raw	TP01	RAW	<0.30	19.9	2.12	7.48
2016-09-12 09:10	2016-09-13 09:05		waterplant raw	Raw	TP01	RAW	<0.30	19.8	3.41	7.41
2016-09-19 08:05	2016-09-20 09:30	A	2124 240th lane greenfield ia 50849	Raw	TP01	RAW	<0.30	20.4	3.38	7.47
2016-09-26 10:15	2016-09-27 09:23		2142 240th lane greenfield water plant	Raw	TP01	RAW	<0.30	16.6	3.6	7.26
2016-10-03 09:45	2016-10-04 09:25		raw watertap/ waterplant	Raw	TP01	RAW	<0.30	15.0	4.32	7.25
2016-10-10 08:52	2016-10-11 09:30		water plant	Raw	TP01	RAW	<0.30	19.3	1.55	7.5
2016-10-16 09:10	2016-10-25 09:15	B	water plant raw	Raw	TP01	RAW	<0.30	18.9	4.04	7.39
2016-10-17 08:30	2016-10-18 09:15		water plant (raw)	Raw	TP01	RAW	<0.30	18.2	3.21	7.41
2016-10-31 09:00	2016-11-01 09:30		waterplant raw	Raw	TP01	RAW	<0.30	15.9	4.98	7.2
2016-11-07 08:30	2016-11-08 09:00		water plant (raw)	Raw	TP01	RAW	<0.30	18.3	3.47	7.62
2016-11-14 08:50	2016-11-15 09:35		water plant raw	Raw	TP01	RAW	<0.30	16.0	3.21	7.41

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-11-21 08:50	2016-11-22 09:00		water plant raw	Raw	TP01	RAW	<0.30	17.8	2.83	7.69
2016-11-28 08:40	2016-11-29 08:55		water plant raw	Raw	TP01	RAW	<0.30	17.7	3.09	7.46
2016-12-05 09:00	2016-12-06 09:30		water plant raw	Raw	TP01	RAW	<0.30	17.1	2.61	7.62
2016-12-12 08:20	2016-12-13 09:15		water plant raw	Raw	TP01	RAW	<0.30	16.5	0.763	7.78
2016-12-19 08:50	2016-12-20 10:10	A	water plant raw	Raw	TP01	RAW	<0.30	14.1	0.394	7.83
2016-12-27 08:45	2016-12-28 09:05		water plant raw	Raw	TP01	RAW	<0.30	13.8	1.21	7.41
2017-01-03 08:20	2017-01-04 09:40		water plant (raw)	Raw	TP01	RAW	<0.30	13.1	1.13	7.45
2017-01-16 08:30	2017-01-17 09:00		gmu water plant raw	Raw	TP01	RAW	<0.30	14.4	1.98	7.86
2017-01-23 09:00	2017-01-24 09:15		gmu water plant	Raw	TP01	RAW	<0.30	15.5	0.817	7.93
2017-01-30 09:00	2017-01-31 09:30		gmu water plant	Raw	TP01	RAW	<0.30	15.5	1.03	7.93
2017-02-06 08:43	2017-02-07 15:50		waterplant raw	Raw	TP01	RAW	<0.30	14.4	1.54	7.69
2017-02-13 08:45	2017-02-14 09:30		gmu water plant	Raw	TP01	RAW	<0.30	15.0	0.942	7.9
2017-02-20 11:20	2017-02-21 09:30		gmu water plant	Raw	TP01	RAW	<0.30	15.1	0.942	7.51
2017-02-27 08:15	2017-02-28 09:30		water plant (raw)	Raw	TP01	RAW	<0.30	12.5	1.89	7.44
2017-03-06 08:30	2017-03-07 10:10		water plant raw	Raw	TP01	RAW	<0.30	9.4	2.03	7.5
2017-03-13 08:43	2017-03-14 09:25		gmu water plant raw	Raw	TP01	RAW	<0.30	14.4	1.81	7.61
2017-03-20 08:46	2017-03-21 09:10		water plant raw	Raw	TP01	RAW	<0.30	9.3	2.61	7.61
2017-03-27 08:30	2017-03-28 09:30		water plant (raw)	Raw	TP01	RAW	<0.30	15.5	1.81	7.98
2017-04-03 08:30	2017-04-04 09:20		water plant raw	Raw	TP01	RAW	<0.30	17.5	2.31	7.55
2017-04-10 09:00	2017-04-11 09:10	B	gmu waterplant	Raw	TP01	RAW	<0.30	13.9	2.19	7.81
2017-04-17 08:20	2017-04-18 09:10		water plant raw	Raw	TP01	RAW	<0.30	14.4	4.13	7.69
2017-04-24 09:00	2017-04-25 09:30		gmu water plant	Raw	TP01	RAW	<0.30	14.4	3.39	7.48
2017-05-01 09:10	2017-05-02 09:30		water plant raw	Raw	TP01	RAW	<0.30	16.6	4.79	7.42
2017-05-08 08:45	2017-05-09 09:25		gmu water plant	Raw	TP01	RAW	<0.30	13.8	3.28	7.95
2017-05-15 08:30	2017-05-16 09:30		gmu water plant	Raw	TP01	RAW	<0.30	13.8	4.21	7.8
2017-05-22 08:30	2017-05-23 09:45		gmu water plant	Raw	TP01	RAW	<0.30	13.3	2.11	7.26
2017-05-30 09:15	2017-05-31 09:23		water plant raw	Raw	TP01	RAW	<0.30	15.1	5.41	7.63
2017-06-05 08:50	2017-06-06 09:30		water plant raw	Raw	TP01	RAW	<0.30	15.7	3.91	7.54
2017-06-12 08:50	2017-06-13 09:00		water plant raw	Raw	TP01	RAW	<0.30	17.9	5.03	7.3

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-06-19 08:41	2017-06-20 09:15		water plant raw	Raw	TP01	RAW	<0.30	20.7	6.31	7.25
2017-06-26 09:05	2017-06-27 09:15		water plant raw	Raw	TP01	RAW	<0.30	22.2	8.94	7.13
Humboldt Municipal Water Department (IA4641064)										
2016-07-11 13:30	2016-07-12 09:05		raw spring tap	Raw	TP03	RAW	<0.30			
2016-07-18 11:30	2016-07-19 09:15	A	raw spring tap	Raw	TP03	RAW	<0.30	11.9		7.3
2016-07-25 12:30	2016-07-26 09:20	A	1101 sumner ave raw spring tap	Raw	TP03	RAW	<0.30	11.9		7.4
2016-08-01 11:45	2016-08-02 09:20		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.9	0.8	7.3
2016-08-08 11:55	2016-08-09 09:15	A	1101 sumner sw raw spring tap	Raw	TP03	RAW	<0.30	11.6	0.1	7.4
2016-08-15 13:21	2016-08-16 09:15	A	raw spring tap 1101 sumner ave sw	Raw	TP03	RAW	<0.30	11.6	0.06	7.5
2016-08-22 11:42	2016-08-23 09:25		raw spring tap 1101 sumner ave sw	Raw	TP03	RAW	<0.30	11.4	0.08	7.4
2016-08-29 12:20	2016-08-30 09:18	A	1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.2	0.08	7.4
2016-09-06 11:55	2016-09-07 09:05	A	raw spring tap 1101 sumner ave sw	Raw	TP03	RAW	<0.30	11.2	0.13	7.4
2016-09-12 13:10	2016-09-13 09:05	A	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.2	7.3
2016-09-19 11:00	2016-09-20 09:30	A	raw spring tap 1101 sumner ave sw	Raw	TP03	RAW	<0.30	11.7	0.07	7.2
2016-09-26 11:15	2016-09-27 09:23	A	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.09	7.1
2016-10-03 11:15	2016-10-04 09:25	A	1101 summer ave sw (raw spring tap)	Raw	TP03	RAW	<0.30	11.2	0.08	7.1
2016-10-10 11:25	2016-10-11 09:30		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.5	0.05	7.1
2016-10-17 12:00	2016-10-18 09:15		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	12.4	0.11	6.8
2016-10-24 11:00	2016-10-25 09:15		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.8	0.06	6.8
2016-10-31 11:20	2016-11-01 09:30	A	1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.04	7.3
2016-11-07 11:00	2016-11-08 09:00		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.8	0.05	7.1
2016-11-14 11:00	2016-11-15 09:35	A	1101 sumner ave ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.8	0.05	7.2
2016-11-21 10:00	2016-11-22 09:00	B	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.07	7.4
2016-11-28 11:10	2016-11-29 08:55		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.3	0.11	7.2
2016-12-06 11:00	2016-12-07 09:15		raw spring tap 1101 sumner ave sw	Raw	TP03	RAW	<0.30	12.1	0.11	7.4

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-12-12 11:00	2016-12-13 09:15		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.9	0.11	7.3
2016-12-19 11:05	2016-12-20 10:10	A	1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.4	0.07	7.4
2016-12-27 11:05	2016-12-28 09:05		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.4	0.06	7.6
2017-01-03 11:10	2017-01-04 09:40	A	1101 summer ave sw (raw spring tap)	Raw	TP03	RAW	<0.30	11.6	0.07	7.4
2017-01-09 11:00	2017-01-10 09:15		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.4	0.06	7.1
2017-01-16 11:25	2017-01-17 08:58		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	13.1	0.08	7.1
2017-01-23 11:05	2017-01-24 09:15		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	15.1	11.2	7.3
2017-01-30 11:30	2017-01-31 09:30		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	13.9	0.25	7.6
2017-02-06 11:05	2017-02-07 15:50		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	13.9	0.27	7.5
2017-02-13 11:15	2017-02-14 09:30		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	12.7	0.09	7.5
2017-02-20 11:10	2017-02-21 09:30		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.9	0.12	7.6
2017-02-27 11:06	2017-02-28 09:30		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	12.6	0.28	7.5
2017-03-06 11:00	2017-03-07 10:10		1101 sumner ave sw raw sprraw spring tap	Raw	TP03	RAW	<0.30	11.8	0.09	7.5
2017-03-13 11:00	2017-03-14 09:25	B	1101 sumner ave se raw spring tap	Raw	TP03	RAW	<0.30	11.9	0.07	7.4
2017-03-20 11:00	2017-03-21 09:10	A	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.8	0.07	7.4
2017-03-27 11:00	2017-03-28 09:30		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.4	0.08	7.5
2017-04-03 10:50	2017-04-04 09:20	B	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.2	0.12	7.4
2017-04-10 11:15	2017-04-11 09:10	B	1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.8	0.18	7.4
2017-04-17 11:11	2017-04-18 09:10		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.09	7.4
2017-04-24 11:05	2017-04-25 09:30	B	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.9	0.07	7.4
2017-05-01 11:05	2017-05-02 09:30		1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.5	0.17	7.3
2017-05-08 11:01	2017-05-09 09:25		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.1	7.3
2017-05-15 10:55	2017-05-16 09:30	B	1101 sumner ave raw spring tap	Raw	TP03	RAW	<0.30	11.8	0.09	7.4
2017-05-22 11:00	2017-05-23 09:45		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.6	0.11	7.3

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-05-30 11:30	2017-05-31 09:23	A	1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.19	7.4
2017-06-05 11:20	2017-06-06 09:30	A	raw spring tap	Raw	TP03	RAW	<0.30	11.7	0.19	7.3
2017-06-12 10:25	2017-06-13 09:00		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.4	10.7	7.4
2017-06-19 10:15	2017-06-20 09:15	A	1101 summer ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.6	0.29	7.4
2017-06-26 10:45	2017-06-27 09:15		1101 sumner ave sw raw spring tap	Raw	TP03	RAW	<0.30	11.5	0.22	7.2
Iowa City Water Department (IA5225079)										
2016-07-11 11:26	2016-07-11 11:49		head tank eff	Raw	TP02	RAW	<0.30			
2016-07-18 10:45	2016-07-18 11:41		head tank blend	Raw	TP02	RAW	<0.30	18.9	0.14	7.86
2016-07-25 09:35	2016-07-25 10:17		raw blend	Raw	TP02	RAW	<0.30	19.4	7.76	
2016-08-01 08:40	2016-08-01 12:00		raw head tank blend	Raw	TP02	RAW	<0.30	20.8	0.174	8.03
2016-08-08 09:55	2016-08-08 11:48		head tank effluent	Raw	TP02	RAW	<0.30	20.6	0.07	7.76
2016-08-15 09:55	2016-08-15 10:10		head tank eff	Raw	TP02	RAW	<0.30	21.0	0.28	7.92
2016-08-22 10:30	2016-08-22 11:08		head tank eff	Raw	TP02	RAW	<0.30	21.0	0.06	7.87
2016-08-29 08:40	2016-08-29 12:54		head tank eff	Raw	TP02	RAW	<0.30	22.0	0.08	7.82
2016-09-06 10:15	2016-09-06 12:07		head tank eff	Raw	TP02	RAW	<0.30	21.0	0.09	7.8
2016-09-12 08:20	2016-09-12 11:45		head tank blend	Raw	TP02	RAW	<0.30	21.6	0.1	7.78
2016-09-19 12:05	2016-09-19 12:59		head tank eff	Raw	TP02	RAW	<0.30	21.0	0.3	7.9
2016-09-27 08:05	2016-09-27 12:00		head tank eff	Raw	TP02	RAW	<0.30	20.0	0.09	7.87
2016-10-03 08:55	2016-10-03 13:30		head tank eff	Raw	TP02	RAW	<0.30	19.0	0.08	7.76
2016-10-10 10:45	2016-10-10 11:04		head tank eff	Raw	TP02	RAW	<0.30	19.0	0.08	7.75
2016-10-17 10:35	2016-10-17 11:03		head tank eff	Raw	TP02	RAW	<0.30	19.0	0.05	7.71
2016-10-24 10:45	2016-10-24 11:07		head tank eff	Raw	TP02	RAW	<0.30	19.0	0.07	7.76
2016-10-31 10:00	2016-10-31 10:25		head tank eff	Raw	TP02	RAW	<0.30	17.0	0.08	7.7
2016-11-07 09:50	2016-11-07 10:30		head tank eff	Raw	TP02	RAW	<0.30	17.0	0.1	7.76
2016-11-14 08:45	2016-11-14 10:47		head tank blend	Raw	TP02	RAW	<0.30	12.0	0.3	7.75
2016-11-21 09:45	2016-11-21 10:14		head tank eff	Raw	TP02	RAW	<0.30	15.0	0.09	7.77
2016-11-28 11:30	2016-11-28 12:10		head tank eff	Raw	TP02	RAW	<0.30	14.0	0.26	7.78
2016-12-05 09:45	2016-12-05 10:54	A	head tank eff	Raw	TP02	RAW	<0.30	14.0	0.07	7.89

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-12-12 13:30	2016-12-12 13:55		head tank eff	Raw	TP02	RAW	<0.30	13.0	0.09	7.81
2016-12-19 10:45	2016-12-19 11:29		head tank eff	Raw	TP02	RAW	<0.30	12.0	0.04	7.83
2016-12-27 10:45	2016-12-27 11:12		head tank eff	Raw	TP02	RAW	<0.30	12.0	0.05	7.82
2017-01-03 10:50	2017-01-03 11:25		head tank eff	Raw	TP02	RAW	<0.30	11.0	0.05	7.82
2017-01-09 11:30	2017-01-09 11:50		head tank eff	Raw	TP02	RAW	<0.30	11.0	0.06	7.75
2017-01-17 11:30	2017-01-17 12:00		head tank eff	Raw	TP02	RAW	<0.30	10.0	0.09	7.78
2017-01-23 10:00	2017-01-23 10:35		head tank effluent	Raw	TP02	RAW	<0.30	9.0	0.07	7.74
2017-01-30 11:00	2017-01-30 11:30		head tank effluent	Raw	TP02	RAW	<0.30	9.0	0.05	7.71
2017-02-06 10:00	2017-02-06 11:20		head tank effluent	Raw	TP02	RAW	<0.30	9.0	0.02	7.64
2017-02-13 11:10	2017-02-13 12:20		head tank eff	Raw	TP02	RAW	<0.30	8.0	0.05	7.78
2017-02-21 08:27	2017-02-21 09:26		head tank	Raw	TP02	RAW	<0.30	11.3	0.127	7.83
2017-02-27 13:50	2017-02-27 14:14		head tank eff	Raw	TP02	RAW	<0.30	8.0	0.05	7.8
2017-03-06 10:05	2017-03-06 11:03		head tank eff	Raw	TP02	RAW	<0.30	8.0	0.05	7.77
2017-03-13 10:30	2017-03-13 10:57		head tank eff	Raw	TP02	RAW	<0.30	9.0	0.13	7.81
2017-03-20 08:50	2017-03-20 09:50		head tank	Raw	TP02	RAW	<0.30	11.1	0.07	7.77
2017-03-27 10:50	2017-03-27 11:20		head tank eff	Raw	TP02	RAW	<0.30	9.0	0.06	7.96
2017-04-03 10:15	2017-04-03 11:01		head tank eff	Raw	TP02	RAW	<0.30	9.0	0.08	7.83
2017-04-10 12:40	2017-04-10 13:04		head tank eff	Raw	TP02	RAW	<0.30	9.0	0.09	8.01
2017-04-17 10:15	2017-04-17 11:00		head tank eff	Raw	TP02	RAW	<0.30	10.0	0.06	8.04
2017-04-24 07:52	2017-04-24 11:57		icwd headtank raw	Raw	TP02	RAW	<0.30	10.9	0.11	7.83
2017-05-01 10:10	2017-05-01 10:34		head tank eff	Raw	TP02	RAW	<0.30	11.0	0.06	7.86
2017-05-08 09:40	2017-05-08 09:59		head tank effluent	Raw	TP02	RAW	<0.30	11.0	0.07	7.79
2017-05-15 09:55	2017-05-15 11:13		head tank eff	Raw	TP02	RAW	<0.30	12.0	0.07	7.72
2017-05-22 08:00	2017-05-22 12:04		head tank	Raw	TP02	RAW	<0.30	12.5	0.11	7.88
2017-05-30 13:30	2017-05-30 14:00		head tank eff	Raw	TP02	RAW	<0.30	13.0	0.06	7.82
2017-06-05 10:45	2017-06-05 13:22		head tank eff	Raw	TP02	RAW	<0.30	13.0	0.67	7.85
2017-06-12 10:20	2017-06-12 11:08		head tank eff	Raw	TP02	RAW	<0.30	14.0	0.09	7.89
2017-06-19 09:07	2017-06-19 11:00	A	icwd head tank	Raw	TP02	RAW	<0.30	15.5		7.87
2017-06-26 10:45	2017-06-26 11:18		head tank eff	Raw	TP02	RAW	<0.30	17.0	0.037	7.9

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
Iowa-American Water Company - Davenport (IA8222001)										
2016-07-11 07:15	2016-07-13 09:15		1719 e river rd miss river	Raw	TP01	RAW	1.6			
2016-07-18 11:18	2016-07-19 09:15		1719 e river rd miss river	Raw	TP01	RAW	0.32	28.0	19.1	7.91
2016-07-25 10:37	2016-07-26 09:20	A	mississippi r	Raw	TP01	RAW	<0.30	29.3	70.4	7.66
2016-07-25 10:45	2016-07-26 09:20	A	plant tap	Finished	01	01	<0.30	27.3		7.48
2016-08-01 07:15	2016-08-02 09:20		mississippi river	Raw	TP01	RAW	<0.30	26.0	15.6	7.74
2016-08-08 08:40	2016-08-09 09:15	A	raw-mississippi r	Raw	TP01	RAW	0.81	28.9	40.6	7.85
2016-08-08 09:07	2016-08-09 09:15	A	plant tap	Finished	01	01	<0.30	26.9	0.114	7.45
2016-08-15 08:15	2016-08-16 09:15		mississippi river	Raw	TP01	RAW	<0.30	27.9	48.4	7.68
2016-08-15 08:25	2016-08-16 09:15		plant tap	Finished	01	01	<0.30	26.3	0.09	7.4
2016-08-22 06:20	2016-08-23 09:25		mississippi river	Raw	TP01	RAW	<0.30	27.5	33.5	7.94
2016-08-22 06:30	2016-08-23 09:25		plant tap	Finished	01	01	<0.30	25.5	0.088	7.47
2016-08-29 09:30	2016-08-30 09:18		mississippi river-raw	Raw	TP01	RAW	<0.30	27.1	96.5	7.68
2016-09-06 07:55	2016-09-07 09:05		mississippi river raw	Raw	TP01	RAW	<0.30	26.0	28.4	7.98
2016-09-12 13:15	2016-09-13 09:00	A	mississippi raw	Raw	TP01	RAW	<0.30	24.4	53	8.08
2016-09-19 09:05	2016-09-20 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	25.0	73	7.89
2016-09-26 07:25	2016-09-27 09:23		mississippi river raw	Raw	TP01	RAW	<0.30		178.8	7.74
2016-10-03 09:55	2016-10-04 09:25	A	mississippi river raw	Raw	TP01	RAW	<0.30		46.8	7.79
2016-10-10 07:40	2016-10-11 09:30		mississippi river raw	Raw	TP01	RAW	<0.30		38.4	8.1
2016-10-17 07:45	2016-10-18 09:15		mississippi river raw	Raw	TP01	RAW	<0.30	19.0	16	8.09
2016-10-24 06:55	2016-10-25 09:15		mississippi river raw	Raw	TP01	RAW	0.32	17.4	34.6	8.37
2016-10-31 10:43	2016-11-01 09:30		mississippi river	Raw	TP01	RAW	<0.30	14.0	44.2	8.17
2016-10-31 10:48	2016-11-01 09:30		plant tap	Finished	01	01	<0.30	15.0	0.065	7.51
2016-11-07 07:15	2016-11-09 09:10		mississippi river raw	Raw	TP01	RAW	<0.30	14.8	26.3	8.21
2016-11-14 12:00	2016-11-15 09:35		mississippi river raw	Raw	TP01	RAW	<0.30	14.0	19.1	8.36
2016-11-21 07:50	2016-11-22 09:00		mississippi river raw	Raw	TP01	RAW	<0.30	11.0	33.1	8.37
2016-11-28 07:15	2016-11-29 08:55		mississippi river raw	Raw	TP01	RAW	<0.30	10.0	26.5	8.39
2016-12-05 07:40	2016-12-06 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	7.6	31.4	8.31
2016-12-12 08:35	2016-12-13 09:15		mississippi river- raw	Raw	TP01	RAW	<0.30	1.0	16.4	8.22

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-12-19 06:40	2016-12-20 10:10		mississippi river-raw	Raw	TP01	RAW	<0.30	0.0	6	8
2016-12-27 07:40	2016-12-28 09:05		mississippi river raw	Raw	TP01	RAW	<0.30	0.5	7.3	8.01
2017-01-03 14:05	2017-01-04 09:40		mississippi river raw	Raw	TP01	RAW	<0.30	0.0	10	7.83
2017-01-09 06:05	2017-01-10 09:15		mississippi river raw	Raw	TP01	RAW	<0.30	0.5	6.9	8.01
2017-01-16 10:50	2017-01-17 09:00		mississippi river-raw	Raw	TP01	RAW	<0.30	1.2	6.2	7.73
2017-01-23 07:00	2017-01-25 09:11		mississippi river raw	Raw	TP01	RAW	<0.30	1.9	37.7	7.61
2017-01-30 06:15	2017-01-31 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	1.7	16.3	7.7
2017-02-06 09:00	2017-02-07 15:50		mississippi river raw	Raw	TP01	RAW	<0.30	1.4	8	8.04
2017-02-13 06:05	2017-02-14 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	1.6	8.9	8.14
2017-02-20 06:45	2017-02-21 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	4.6	9.4	8.18
2017-02-27 07:30	2017-02-28 09:30		mississippi river	Raw	TP01	RAW	<0.30	5.0	36.7	8.29
2017-03-06 11:05	2017-03-07 10:10		mississippi river raw	Raw	TP01	RAW	<0.30	6.3	23.4	8.15
2017-03-13 10:50	2017-03-14 09:25		mississippi river raw	Raw	TP01	RAW	<0.30	5.1	22.4	8.38
2017-03-20 10:50	2017-03-21 09:10		mississippi river raw	Raw	TP01	RAW	<0.30	6.9	20	8.45
2017-03-27 12:00	2017-03-28 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	8.6	15.5	8.57
2017-04-03 07:15	2017-04-04 09:20		mississippi river raw	Raw	TP01	RAW	<0.30	10.1	20.5	8.34
2017-04-10 08:50	2017-04-11 09:10		mississippi river raw	Raw	TP01	RAW	<0.30	13.7	23.4	8.37
2017-04-17 08:40	2017-04-18 09:10		mississippi river raw	Raw	TP01	RAW	<0.30	15.4	64.9	8.23
2017-04-24 07:50	2017-04-25 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	17.2	36.9	8.09
2017-05-01 10:15	2017-05-02 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	15.2	34	8.05
2017-05-08 08:40	2017-05-09 09:25		mississippi river raw	Raw	TP01	RAW	<0.30	14.7	23	8.23
2017-05-15 10:10	2017-05-16 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	21.2	26.7	8.28
2017-05-22 08:30	2017-05-23 09:45	C	mississippi river raw	Raw	TP01	RAW	<0.30	16.5	33	8.08
2017-05-30 08:50	2017-05-31 09:23		mississippi river raw	Raw	TP01	RAW	<0.30	17.2	57	7.54
2017-06-05 09:50	2017-06-06 09:30		mississippi river raw	Raw	TP01	RAW	<0.30	22.7	34.2	7.92
2017-06-12 11:25	2017-06-13 09:00		mississippi river raw	Raw	TP01	RAW	<0.30	26.1	32.2	7.93
2017-06-19 12:50	2017-06-20 09:15		mississippi river raw	Raw	TP01	RAW	<0.30	25.8	47.9	7.63
2017-06-26 09:40	2017-06-27 09:15		mississippi river raw	Raw	TP01	RAW	<0.30	23.2	39.9	7.87
Lamoni Municipal Utilities (IA2740050)										

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-07-11 07:45	2016-07-12 09:05		northwoods lake lamoni ia	Raw	TP01	RAW	<0.30			
2016-07-18 07:12	2016-07-19 09:15		northwood lake hydrant	Raw	TP01	RAW	<0.30	27.2	1.76	8.04
2016-07-24 08:36	2016-07-26 09:20	A, B	04 northwood raw	Raw	TP01	RAW	<0.30	28.9	2.11	7.7
2016-08-01 08:31	2016-08-02 09:20		northwoods hydrant	Raw	TP01	RAW	<0.30	27.6	1.7	8.21
2016-08-08 07:12	2016-08-09 09:15		raw north woods hydrant	Raw	TP01	RAW	<0.30	27.2	1.21	8.23
2016-08-15 07:10	2016-08-16 09:15	A	northwoods hydrant	Raw	TP01	RAW	<0.30	27.8	1.12	8.68
2016-08-22 08:00	2016-08-23 09:25		north woods lake	Raw	TP01	RAW	<0.30	26.7	1.76	8.19
2016-08-29 07:16	2016-08-30 09:18		northwoods hydrant	Raw	TP01	RAW	<0.30	26.1	1.61	8.22
2016-09-06 07:25	2016-09-07 09:05		northwoods lake	Raw	TP01	RAW	<0.30	25.6	2.42	8.43
2016-09-12 08:31	2016-09-13 09:05		northwoods hydrant	Raw	TP01	RAW	<0.30	23.9	2.74	8.39
2016-09-19 07:17	2016-09-20 09:30		northwoods hydrant	Raw	TP01	RAW	<0.30	23.9	2.39	8.17
2016-09-26 07:17	2016-09-27 09:23		northwoods hydrant	Raw	TP01	RAW	<0.30	23.9	1.68	8.61
2016-10-03 07:35	2016-10-04 09:25		northwoods lake	Raw	TP01	RAW	<0.30	20.6	1.52	8.15
2016-10-10 07:21	2016-10-11 09:30		northwoods hydrant	Raw	TP01	RAW	<0.30	18.9	0.99	7.72
2016-10-17 08:02	2016-10-18 09:15		water plant 001 sink	Raw	TP01	RAW	<0.30	18.2	10.9	7.86
2016-10-24 14:32	2016-10-25 09:15		home pond	Raw	TP01	RAW	<0.30	16.1	11.5	8.23
2016-10-31 10:30	2016-11-01 09:30		home pond	Raw	TP01	RAW	<0.30	16.1	11.3	8.06
2016-11-07 08:55	2016-11-08 09:00		water plant aerator home pond	Raw	TP01	RAW	<0.30	15.0		7.43
2016-11-14 08:44	2016-11-15 09:35		water plant aerator home pond	Raw	TP01	RAW	<0.30	11.7	12.1	8.1
2016-11-21 07:30	2016-11-22 09:00	B	home pond lamoni ia	Raw	TP01	RAW	<0.30	8.9	11.1	7.8
2016-11-28 08:15	2016-11-29 08:55		home pond lamoni ia	Raw	TP01	RAW	<0.30	8.3	12.1	8.14
2016-12-05 09:20	2016-12-06 09:30		home pond lamoni ia	Raw	TP01	RAW	<0.30	6.1	9.55	7.83
2016-12-12 10:25	2016-12-13 09:15		water plant-aerator home pond	Raw	TP01	RAW	<0.30	2.3	8.37	8.35
2017-01-09 08:00	2017-01-10 09:15		home pond aerator home pond	Raw	TP01	RAW	<0.30	2.1	6.62	8.16
2017-01-16 08:10	2017-01-17 08:58	B	home pond lamoni ia	Raw	TP01	RAW	<0.30	2.8	6.64	8.04
2017-01-23 08:11	2017-01-24 09:15	A	aerator water plant home pond	Raw	TP01	RAW	<0.30	3.9	8.24	8.24
2017-01-30 07:50	2017-01-31 09:30		wp aerator home pond	Raw	TP01	RAW	<0.30	2.8	7.7	8.27
2017-02-06 08:30	2017-02-07 15:50		home pond lamoni, ia	Raw	TP01	RAW	<0.30	3.9	8.15	8.47
2017-02-13 07:28	2017-02-14 09:30		water plant aerator home pond	Raw	TP01	RAW	<0.30	4.4	9.06	8.35

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-02-20 08:45	2017-02-21 09:30		111 s chestnut home pond	Raw	TP01	RAW	<0.30	9.4	9.89	8.43
2017-02-27 10:00	2017-02-28 09:30	A, B	home pond lamoni ia	Raw	TP01	RAW	<0.30	6.7	12.8	8.24
2017-03-06 11:02	2017-03-07 10:10		aerator at water plant home pond	Raw	TP01	RAW	<0.30	9.4	14.8	8.4
2017-03-13 10:04	2017-03-14 09:25		water plant aerator home pond	Raw	TP01	RAW	<0.30	6.1	15	7.74
2017-03-20 08:34	2017-03-21 09:10		water plant aerator home pond	Raw	TP01	RAW	<0.30	10.0	12.5	8.27
2017-03-27 09:00	2017-03-28 09:30		water plant aerator home pond	Raw	TP01	RAW	<0.30	10.0		8.1
2017-04-03 08:08	2017-04-04 09:20		water plant aerator home pond	Raw	TP01	RAW	<0.30	10.6	13.8	8.17
2017-04-10 07:58	2017-04-11 09:10		home pond aerator	Raw	TP01	RAW	<0.30	14.4	23.8	8.2
2017-04-17 09:20	2017-04-19 09:00	A	home pond	Raw	TP01	RAW	<0.30	16.7	19.1	7.3
2017-04-24 08:25	2017-04-25 09:30		home pond/ aerator	Raw	TP01	RAW	<0.30	16.1	27.7	8.11
2017-05-01 09:30	2017-05-02 09:30		home pond lamoni ia	Raw	TP01	RAW	<0.30	11.1	16.1	8.15
2017-05-08 08:00	2017-05-09 09:25		water plant aerator home pond	Raw	TP01	RAW	<0.30	15.0	16.4	7.63
2017-05-15 07:20	2017-05-16 09:30		water plant aerator home pond	Raw	TP01	RAW	<0.30	20.6	14.4	7.63
2017-05-22 08:30	2017-05-23 09:45		home pond lamoni	Raw	TP01	RAW	<0.30	17.8	15.6	8.1
2017-05-30 09:07	2017-05-31 09:23		home pond lamoni ia	Raw	TP01	RAW	<0.30	20.6	16.4	8.28
2017-06-05 07:16	2017-06-06 09:30		hydrant northwoods lake	Raw	TP01	RAW	<0.30	23.3	2.06	8.22
2017-06-12 07:50	2017-06-13 09:00		north woods lake	Raw	TP01	RAW	<0.30	25.6	2.06	8.71
2017-06-19 07:19	2017-06-20 09:15		hydrant at northwoods	Raw	TP01	RAW	<0.30	23.9	1.77	7.9
2017-06-26 07:25	2017-06-27 09:15		north woods	Raw	TP01	RAW	<0.30	23.9	2.08	8.35
Leon Water Supply (IA2742076)										
2016-07-11 10:00	2016-07-12 09:05		raw water tap	Raw	TP01	TP01	1.1			
2016-07-18 10:30	2016-07-19 09:15		raw tap	Raw	TP01	TP01	0.55	26.0	7.5	8.35
2016-07-18 10:45	2016-07-19 09:15		lab sink cfe	Finished	01	01	<0.30	25.5		7.8
2016-07-25 08:30	2016-07-26 09:20	A	raw tap	Raw	TP01	RAW	0.44	26.5	5.3	7.93
2016-07-25 08:40	2016-07-26 09:20	A	sep 01-lab sink	Finished	01	01	<0.30	25.0		7.7
2016-08-01 11:00	2016-08-02 09:20		leon raw water tap	Raw	TP01	RAW	<0.30	26.0	6.5	8.15
2016-08-01 11:00	2016-08-02 09:20		water plant lab sink	Finished	01	01	<0.30	27.0		7.82
2016-08-08 10:30	2016-08-09 09:15	A	raw water tap	Raw	TP01	RAW	0.33	26.0	6.6	8.12

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-08-15 08:00	2016-08-16 09:15		raw water tap	Raw	TP01	RAW	0.49	26.0	7.2	8.04
2016-08-15 08:00	2016-08-16 09:15		plant lab sink	Finished	01	01	<0.30	26.0	0.01	7.65
2016-08-23 13:35	2016-08-24 10:30		raw water tap	Raw	TP01	RAW	0.81	25.5	9.1	7.86
2016-08-23 13:35	2016-08-24 10:30		lab sink	Finished	01	01	<0.30	26.0	0.03	7.54
2016-08-29 11:00	2016-08-30 09:18	A	leon raw water tap	Raw	TP01	RAW	0.75	25.0	6.1	7.83
2016-08-29 11:00	2016-08-30 09:18	A	leon wtp lab sink	Finished	01	01	<0.30	25.0	0.06	7.6
2016-09-05 12:00	2016-09-07 09:05		raw water tap	Raw	TP01	RAW	0.93	24.0	7	7.3
2016-09-05 12:15	2016-09-07 09:05		lab sink	Finished	01	01	<0.30	24.0	0.11	7.45
2016-09-13 10:30	2016-09-14 08:55		leon wtp raw tap	Raw	TP01	RAW	0.68	24.0	6.3	7.4
2016-09-13 10:30	2016-09-14 08:55		leon wtp lab sink	Finished	01	01	<0.30	23.5	0.09	7.63
2016-09-19 09:00	2016-09-20 09:30		raw water tap	Raw	TP01	RAW	<0.30	23.0	5.4	7.8
2016-09-19 09:15	2016-09-20 09:30		lab sink	Finished	01	01	<0.30	23.0	0.2	7.57
2016-09-26 09:25	2016-09-27 09:23		raw water tap	Raw	TP01	RAW	0.42	22.5	5.2	7.9
2016-10-03 09:00	2016-10-04 09:25		lab sink	Finished	01	01	<0.30	21.0	0.1	7.69
2016-10-03 09:15	2016-10-04 09:25		raw water tap	Raw	TP01	RAW	<0.30	20.5	5	7.97
2016-10-10 11:00	2016-10-11 09:30		raw water tap	Raw	TP01	RAW	<0.30	19.0	4.6	8.01
2016-10-17 14:45	2016-10-18 10:10		leon wtp raw tap	Raw	TP01	RAW	<0.30	17.5	3.8	7.92
2016-10-24 10:30	2016-10-25 09:15		leon wtp raw tap	Raw	TP01	RAW	0.37	16.0	5.1	8.01
2016-10-31 08:30	2016-11-01 09:30		leon wtp raw tap	Raw	TP01	RAW	<0.30	16.0	5.4	7.71
2016-10-31 08:30	2016-11-01 09:30		leon wtp lab sink	Finished	01	01	<0.30	16.0	0.03	7.84
2016-11-07 09:15	2016-11-08 09:00		raw water tap	Raw	TP01	RAW	<0.30	15.0	5.1	7.73
2016-11-14 09:00	2016-11-15 09:35		raw tap	Raw	TP01	RAW	<0.30	13.0	4.8	8
2016-11-21 10:15	2016-11-22 09:00		leon wtp raw tap	Raw	TP01	RAW	<0.30	11.0	3.8	8.01
2016-11-28 10:15	2016-11-29 08:55		leon wtp raw tap	Raw	TP01	RAW	<0.30	10.0	2.8	8.01
2016-12-05 10:30	2016-12-06 09:30		raw water tap	Raw	TP01	RAW	<0.30	9.0	2.7	7.72
2016-12-12 08:00	2016-12-13 09:15		raw water tap	Raw	TP01	RAW	<0.30	4.0	2.2	7.4
2016-12-19 09:00	2016-12-20 10:10		raw water tap	Raw	TP01	RAW	<0.30	2.5	1.67	7.65
2016-12-27 08:00	2016-12-28 09:05	A	raw water tap	Raw	TP01	RAW	0.31	4.0	1.33	7.7
2017-01-03 08:00	2017-01-04 09:40	A	raw water tap	Raw	TP01	RAW	<0.30	4.0	1.29	7.65

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-01-03 08:30	2017-01-04 09:40	A	lab sink	Finished	01	01	<0.30	4.0	0.01	7.6
2017-01-09 08:30	2017-01-10 09:15		raw water tap	Raw	TP01	RAW	<0.30	2.5	1.15	8
2017-01-17 08:00	2017-01-18 09:00		leon wtp raw tap	Raw	TP01	RAW	<0.30	4.0	1.3	7.9
2017-01-23 10:30	2017-01-24 09:15		raw water tap	Raw	TP01	RAW	<0.30	4.5	1.4	7.7
2017-01-30 08:30	2017-01-31 09:30		raw water tap	Raw	TP01	RAW	<0.30	4.5	1.55	7.83
2017-02-06 10:45	2017-02-07 15:50		leon wtp raw tap	Raw	TP01	RAW	<0.30	4.0	1.7	8
2017-02-13 08:30	2017-02-14 09:30		raw water tap	Raw	TP01	RAW	<0.30	4.0	1.9	8.08
2017-02-20 08:30	2017-02-21 09:30		raw water tap	Raw	TP01	RAW	<0.30	5.5	2.2	8.03
2017-02-27 10:00	2017-02-28 09:30		raw water tap	Raw	TP01	RAW	<0.30	7.5	3.8	8.28
2017-03-06 08:30	2017-03-07 10:10		raw water tap	Raw	TP01	RAW	<0.30	7.0	4.1	8.24
2017-03-13 10:30	2017-03-14 09:25		raw water tap	Raw	TP01	RAW	<0.30	7.5	3.3	8.09
2017-03-20 09:00	2017-03-21 09:10		leon wtp raw tap	Raw	TP01	RAW	<0.30	8.0	2.4	7.96
2017-03-27 08:30	2017-03-28 09:30		raw water tap	Raw	TP01	RAW	<0.30	9.0	2	7.88
2017-04-03 09:00	2017-04-04 09:20		raw water tap	Raw	TP01	RAW	<0.30	10.0	2.6	7.78
2017-04-11 10:00	2017-04-12 09:20		leon wtp raw tap	Raw	TP01	RAW	<0.30	11.5	7.9	7.58
2017-04-17 10:00	2017-04-18 09:10		little river lake raw water tap	Raw	TP01	RAW	<0.30	12.5	10.5	8.2
2017-04-17 10:00	2017-04-18 09:10		lab sink	Finished	01	01	<0.30	13.0	0.01	7.87
2017-04-24 09:00	2017-04-25 09:30		raw water tap	Raw	TP01	RAW	<0.30	15.5	6	7.9
2017-05-01 09:00	2017-05-02 09:30		raw tap	Raw	TP01	RAW	<0.30	13.0	3.2	8.15
2017-05-08 10:00	2017-05-09 09:25		raw water tap	Raw	TP01	RAW	<0.30	14.5	3.4	7.8
2017-05-15 11:00	2017-05-16 09:30		leon wtp raw tap	Raw	TP01	RAW	<0.30			
2017-05-22 10:30	2017-05-23 09:45	A	leon wtp raw tap	Raw	TP01	RAW	<0.30	19.0	6.1	8.25
2017-05-30 10:00	2017-05-31 09:23		leon wtp raw tap	Raw	TP01	RAW	<0.30	21.0	7.4	8.7
2017-06-05 09:00	2017-06-06 09:30		raw water tap	Raw	TP01	RAW	0.31	21.0	14	7.96
2017-06-12 10:30	2017-06-13 09:00	A	leon wtp raw tap	Raw	TP01	RAW	0.37	21.0	7.3	7.98
2017-06-12 10:30	2017-06-13 09:00	A	leon wtp lab sink	Finished	01	01	<0.30	20.0	0.1	7.7
2017-06-19 09:00	2017-06-20 09:15		raw water tap	Raw	TP01	RAW	0.66	24.0	8.7	8.49
2017-06-19 09:00	2017-06-20 09:15		lab sink leon water plant	Finished	01	01	<0.30	23.5	0.08	7.6
2017-06-26 09:30	2017-06-27 09:15		raw water tap	Raw	TP01	RAW	2.8	24.0	9.5	8.33

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-06-26 09:30	2017-06-27 09:15		lab sink cfe	Finished	01	01	<0.30	24.0	0.05	7.84
Madrid Water Department (IA0848015)										
2016-07-26 09:30	2016-07-27 09:01	A	madrid water plant raw tap	Raw	TP01	RAW	<0.30			
2016-08-10 09:00	2016-08-11 09:25	A	water plant raw tap	Raw	TP01	RAW	<0.30	13.9	0.07	7.3
2016-08-31 08:30	2016-09-01 09:00	A	raw tap	Raw	TP01	RAW	<0.30	14.4	0.07	7.32
2016-09-27 09:20	2016-09-28 09:15		raw tap plant	Raw	TP01	RAW	<0.30	13.0	0.08	7.37
2017-01-19 09:00	2017-01-20 09:30	A	1575 334th raw tap	Raw	TP01	RAW	<0.30	14.0	0.08	7.28
2017-01-31 09:30	2017-02-01 09:25		raw tap	Raw	TP01	RAW	<0.30	14.0	0.09	7.26
2017-02-09 09:30	2017-02-10 09:10	A	water plant raw tap	Raw	TP01	RAW	<0.30	14.0	0.11	7.35
2017-02-23 10:00	2017-02-24 09:25	A	madrid raw tap	Raw	TP01	RAW	<0.30	13.0	0.212	7.41
2017-04-06 10:00	2017-04-07 09:20	A	madrid raw tap	Raw	TP01	RAW	<0.30	12.0	0.107	7.39
2017-04-26 09:15	2017-04-27 08:55	A	madrid raw tap	Raw	TP01	RAW	<0.30	12.0	0.09	7.39
2017-06-13 09:00	2017-06-14 09:20	A	madrid raw tap	Raw	TP01	RAW	<0.30	13.0	0.07	7.38
2017-06-22 09:00	2017-06-23 09:15	A	madrid raw tap	Raw	TP01	RAW	<0.30	12.0	0.07	7.29
Milford Municipal Utilities (IA3050079)										
2016-07-11 08:59	2016-07-11 09:27		pump house	Raw	TP01	RAW	<0.30			
2016-07-18 09:35	2016-07-18 09:44		pump house	Raw	TP01	RAW	<0.30	20.6	1.1	8
2016-07-25 09:28	2016-07-25 11:39		pump house	Raw	TP01	RAW	0.34	22.4	1	7.98
2016-07-28 08:10	2016-07-28 09:11		water plant	Finished	01	01	<0.30	25.0		7.57
2016-08-01 09:18	2016-08-01 10:11		pump house	Raw	TP01	RAW	0.59	24.0	1.1	8.01
2016-08-04 08:02	2016-08-04 08:46		water plant	Finished	01	01	<0.30	22.5	1.2	8.01
2016-08-08 09:36	2016-08-08 09:52		pump house	Raw	TP01	RAW	<0.30	23.2	1.21	7.99
2016-08-15 09:58	2016-08-15 10:29	A, B	pump house	Raw	TP01	RAW	<0.30	23.4	1.69	7.99
2016-08-22 09:00	2016-08-22 09:38		pumphouse	Raw	TP01	RAW	<0.30	22.6	1.39	8.06
2016-08-29 09:00	2016-08-29 09:18		pumphouse	Raw	TP01	RAW	<0.30	22.6	2	8.22
2016-09-06 08:45	2016-09-06 09:50		pump house	Raw	TP01	RAW	<0.30	21.5	1.4	8.15
2016-09-13 07:53	2016-09-13 08:37		pump house	Raw	TP01	RAW	<0.30	21.1	1.3	8.34
2016-09-19 07:09	2016-09-19 08:39		pump house	Raw	TP01	RAW	<0.30	20.0	1.6	8.35
2016-09-26 08:57	2016-09-26 09:27	B	pump house	Raw	TP01	RAW	0.76	20.0	1.1	8.31

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-10-03 07:01	2016-10-03 10:42		water plant-finished water	Finished	01	01	<0.30	20.8	0.049	7.68
2016-10-03 09:20	2016-10-03 10:42		pumphouse-raw	Raw	TP01	RAW	<0.30	20.0	0.98	8.3
2016-10-10 09:17	2016-10-10 10:00		pump house	Raw	TP01	RAW	<0.30	16.9	0.89	8.22
2016-10-17 09:11	2016-10-17 10:15		pump house	Raw	TP01	RAW	<0.30	15.6	1.3	8.16
2016-10-24 09:10	2016-10-24 09:46		pumphouse	Raw	TP01	RAW	<0.30	14.8	0.7	8.18
2016-10-31 08:53	2016-10-31 09:17		pumphouse	Raw	TP01	RAW	<0.30	13.7	1.4	8.22
2016-11-07 09:30	2016-11-07 09:57		pump house	Raw	TP01	RAW	<0.30	13.3	1.7	8.06
2016-11-15 09:13	2016-11-15 10:06		pumphouse	Raw	TP01	RAW	<0.30	12.0	0.56	8.2
2016-11-21 09:10	2016-11-21 09:38		pump house	Raw	TP01	RAW	<0.30	10.0	0.44	8.2
2016-11-28 09:35	2016-11-28 10:07		pump house	Raw	TP01	RAW	<0.30	8.9	0.4	8.21
2016-12-05 09:00	2016-12-05 10:02		pump house	Raw	TP01	RAW	<0.30	7.4	0.3	8.33
2016-12-12 10:00	2016-12-12 10:34		pump house	Raw	TP01	RAW	<0.30	4.5	0.37	8.27
2016-12-19 10:06	2016-12-19 10:31		pump house	Raw	TP01	RAW	<0.30	2.1	0.39	8.29
2016-12-27 08:40	2016-12-28 09:05		pump house	Raw	TP01	RAW	<0.30	3.0	0.39	8.33
2017-01-03 09:00	2017-01-03 10:03		pump house	Raw	TP01	RAW	<0.30	2.7	0.32	8.32
2017-01-09 09:12	2017-01-09 09:44		pump house	Raw	TP01	RAW	<0.30	2.7	0.33	8.33
2017-01-16 11:15	2017-01-16 11:36		pump house	Raw	TP01	RAW	<0.30	2.9	0.34	8.44
2017-01-23 09:00	2017-01-23 09:40		pump house 1002 lake st	Raw	TP01	RAW	<0.30	3.0	0.39	8.5
2017-01-30 09:23	2017-01-30 10:02		pump house	Raw	TP01	RAW	<0.30	3.0	0.35	8.5
2017-02-06 09:00	2017-02-06 09:37		pump house	Raw	TP01	RAW	<0.30	3.0	0.32	8.45
2017-02-13 08:30	2017-02-13 09:25		pump house	Raw	TP01	RAW	<0.30	0.36	0.37	8.44
2017-02-21 08:17	2017-02-21 09:00		pump house	Raw	TP01	RAW	<0.30	4.0	0.44	8.6
2017-02-27 09:00	2017-02-27 09:02		pump house	Raw	TP01	RAW	<0.30	4.3	0.61	8.59
2017-03-06 09:00	2017-03-06 09:30		pump house	Raw	TP01	RAW	<0.30	4.2	0.35	8.45
2017-03-13 08:53	2017-03-13 09:27		pump house	Raw	TP01	RAW	<0.30	3.1	0.99	8.58
2017-03-20 08:34	2017-03-20 09:22		pump house	Raw	TP01	RAW	<0.30	3.3	0.78	8.53
2017-03-27 08:45	2017-03-27 09:20		pump house	Raw	TP01	RAW	<0.30	3.5	0.65	8.47
2017-04-03 09:10	2017-04-03 11:02		pumphouse	Raw	TP01	RAW	<0.30	5.1	0.61	8.39
2017-04-10 09:34	2017-04-10 09:57		pump house	Raw	TP01	RAW	<0.30	6.4	1	8.43

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-04-17 07:20	2017-04-17 09:15		pump house	Raw	TP01	RAW	<0.30	8.2	0.37	8.21
2017-04-24 08:35	2017-04-24 09:03		pump house	Raw	TP01	RAW	<0.30	8.5	0.47	8.35
2017-05-01 09:47	2017-05-01 10:17		pumphouse	Raw	TP01	RAW	<0.30	8.4	0.74	8.3
2017-05-08 09:04	2017-05-08 09:34		pumphouse	Raw	TP01	RAW	<0.30	8.8	0.34	8.3
2017-05-15 09:05	2017-05-15 09:47		pump house	Raw	TP01	RAW	<0.30	11.5	0.28	8.23
2017-05-22 08:55	2017-05-22 09:20		pump house	Raw	TP01	RAW	<0.30	12.4	0.36	8.29
2017-05-30 08:55	2017-05-30 09:36	B	pumphouse	Raw	TP01	RAW	<0.30	14.5	0.497	8.3
2017-06-05 09:00	2017-06-05 09:00		pump house	Raw	TP01	RAW	<0.30	14.5	1.04	8.3
2017-06-12 09:08	2017-06-12 09:51		pumphouse	Raw	TP01	RAW	<0.30	15.3	1.51	8.28
2017-06-19 08:55	2017-06-19 09:25		pump house	Raw	TP01	RAW	<0.30	17.1	0.48	8.2
2017-06-26 10:10	2017-06-26 10:35	D	pump house	Raw	TP01	RAW	<0.30	14.8	0.88	8.27
Montezuma Municipal Water Supply (IA7950097)										
2016-07-11 07:30	2016-07-12 09:05		1185 diamond trail rd	Raw	TP01	RAW	<0.30			
2016-07-18 08:00	2016-07-19 09:15		1185 diamond trail rd	Raw	TP01	RAW	0.33	25.9	5.27	8.76
2016-07-25 08:00	2016-07-26 09:20		diamond lake	Raw	TP01	RAW	<0.30	28.8	13.37	9.06
2016-07-25 08:00	2016-07-26 09:20		plant tap	Finished	01	01	<0.30	28.0	0.16	8.61
2016-08-01 08:00	2016-08-02 12:10	A	diamond lake	Raw	TP01	RAW	<0.30	27.1	9.56	8.85
2016-08-08 08:00	2016-08-09 09:15		diamond lake	Raw	TP01	RAW	<0.30	26.0	10.03	8.2
2016-08-15 08:00	2016-08-16 09:15	A	diamond lake	Raw	TP01	RAW	<0.30	26.3	10.71	8.3
2016-08-22 08:00	2016-08-23 09:25		diamond lake	Raw	TP01	RAW	<0.30	25.0	8.12	8.4
2016-08-29 07:00	2016-08-30 09:18		diamond lake	Raw	TP01	RAW	<0.30	24.5	11.96	8.26
2016-09-06 08:00	2016-09-07 09:05	A	diamond lake	Raw	TP01	RAW	<0.30	24.1	12.79	8.29
2016-09-12 08:00	2016-09-13 09:00	A	diamond lake	Raw	TP01	RAW	<0.30	23.0	12.03	8.1
2016-09-19 08:00	2016-09-20 09:30		diamond lake	Raw	TP01	RAW	<0.30	22.5	18.7	8.09
2016-09-26 08:00	2016-09-27 11:29		diamond lake	Raw	TP01	RAW	<0.30	22.4	7.33	8.4
2016-10-03 08:00	2016-10-04 09:25		diamond lake	Raw	TP01	RAW	<0.30	19.2	10.44	8.31
2016-10-10 08:30	2016-10-11 09:30		diamond lake	Raw	TP01	RAW	<0.30	18.3	16.74	8.77
2016-10-17 07:30	2016-10-18 09:15		diamond lake	Raw	TP01	RAW	<0.30	17.1	12.7	8.2
2016-10-24 08:00	2016-10-25 09:15		diamond lake	Raw	TP01	RAW	<0.30	16.1	14.78	8.25

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-10-31 08:00	2016-11-01 09:30		diamond lake	Raw	TP01	RAW	<0.30	15.2	11.35	8.25
2016-11-07 08:00	2016-11-08 09:00		diamond lake	Raw	TP01	RAW	<0.30	15.2	16.66	8.25
2016-11-14 08:00	2016-11-15 09:35		diamond lake	Raw	TP01	RAW	<0.30	12.0	15.77	8.69
2016-11-21 08:00	2016-11-22 09:00		diamond lake	Raw	TP01	RAW	<0.30	10.0	20.02	8.38
2016-11-28 07:00	2016-11-29 08:55		diamond lake	Raw	TP01	RAW	<0.30	8.7	19.6	8.35
2016-12-05 08:00	2016-12-06 09:30		diamond lake	Raw	TP01	RAW	<0.30	7.0	18.6	8.48
2016-12-12 08:00	2016-12-13 09:15		diamond lake	Raw	TP01	RAW	<0.30	4.5	24.67	8.05
2016-12-19 08:00	2016-12-20 10:10		diamond lake	Raw	TP01	RAW	<0.30	4.0	6.55	8.48
2016-12-27 08:00	2016-12-28 09:05		diamond lake	Raw	TP01	RAW	<0.30	6.0	7.17	7.85
2017-01-03 08:00	2017-01-04 09:40		diamond lake	Raw	TP01	RAW	<0.30	6.0		7.93
2017-01-09 08:30	2017-01-10 09:15		diamond lake	Raw	TP01	RAW	<0.30	6.0	10.62	8.35
2017-01-17 08:00	2017-01-18 09:00		diamond lake	Raw	TP01	RAW	<0.30	7.1	12.01	7.74
2017-01-23 08:00	2017-01-24 09:15		diamond lake	Raw	TP01	RAW	<0.30	7.1	8.68	7.74
2017-01-27 08:00	2017-01-31 09:30	B	diamond lake	Raw	TP01	RAW	<0.30	6.8	9.05	7.94
2017-02-06 08:00	2017-02-07 15:50		diamond lake	Raw	TP01	RAW	<0.30	6.3	7.61	7.83
2017-02-13 08:00	2017-02-14 09:30		diamond lake	Raw	TP01	RAW	<0.30	6.5	7.73	7.85
2017-02-20 08:00	2017-02-21 09:30	B	diamond lake	Raw	TP01	RAW	<0.30	8.5	10.65	8.13
2017-02-27 08:00	2017-02-28 09:30		diamond lake	Raw	TP01	RAW	<0.30	7.8	20.48	8.05
2017-03-06 08:00	2017-03-07 10:10		diamond lake	Raw	TP01	RAW	<0.30	8.0	12.87	8.15
2017-03-13 08:00	2017-03-14 09:25		diamond lake	Raw	TP01	RAW	<0.30	7.0	9.69	8.21
2017-03-20 08:00	2017-03-21 09:10		diamond lake	Raw	TP01	RAW	<0.30	7.4	9.65	8.49
2017-03-27 08:00	2017-03-28 09:30		diamond lake	Raw	TP01	RAW	<0.30	9.8	12.05	8.26
2017-04-03 08:00	2017-04-05 09:05		diamond lake	Raw	TP01	RAW	<0.30	10.0	11.02	8.31
2017-04-10 08:00	2017-04-11 09:10		diamond lake	Raw	TP01	RAW	<0.30	12.8	16.07	8.09
2017-04-17 08:00	2017-04-18 09:10		diamond lake	Raw	TP01	RAW	<0.30	16.5	17.57	8.44
2017-04-24 08:00	2017-04-25 09:30		diamond lake	Raw	TP01	RAW	<0.30	16.8	20.1	8.1
2017-05-01 08:00	2017-05-02 09:30		diamond lake	Raw	TP01	RAW	<0.30	13.5	22.04	8.07
2017-05-08 08:00	2017-05-09 09:25		diamond lake	Raw	TP01	RAW	<0.30	15.9	16.38	8.4
2017-05-15 08:00	2017-05-16 09:30		diamond lake	Raw	TP01	RAW	<0.30	20.8	16.43	8.3

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-05-22 08:00	2017-05-23 09:45		diamond lake	Raw	TP01	RAW	<0.30	16.5	20.83	8.13
2017-05-30 08:00	2017-05-31 09:23		diamond lake	Raw	TP01	RAW	<0.30	17.6	11.38	8.59
2017-06-05 08:00	2017-06-06 09:30		diamond lake	Raw	TP01	RAW	<0.30	23.0	8.3	8.5
2017-06-12 08:00	2017-06-13 09:00		diamond lake	Raw	TP01	RAW	<0.30	24.3	13.14	8.3
2017-06-19 08:00	2017-06-20 09:15		diamond lake	Raw	TP01	RAW	<0.30	24.8	18.56	8.22
2017-06-26 08:00	2017-06-27 09:15		diamond lake	Raw	TP01	RAW	0.6	23.0	16.42	8.64
Osceola Water Works (IA2038038)										
2016-07-11 08:10	2016-07-12 09:05		plant tap	Raw	TP01	RAW	<0.30			
2016-07-18 08:30	2016-07-19 09:15		plant tap	Raw	TP01	RAW	<0.30	26.5	16.2	8.9
2016-07-25 09:30	2016-07-26 09:20		plant tap raw	Raw	TP01	RAW	<0.30	26.0	4.77	7.67
2016-08-01 08:00	2016-08-02 09:20		raw plant tap	Raw	TP01	RAW	<0.30	26.3	6.5	8.58
2016-08-08 09:00	2016-08-09 09:15	A	plant tap	Raw	TP01	RAW	<0.30	25.3	5.29	8.3
2016-08-15 09:00	2016-08-16 09:15		raw tap	Raw	TP01	RAW	<0.30	26.1	4.86	7.99
2016-08-22 09:00	2016-08-23 09:25	A	plant tap	Raw	TP01	RAW	<0.30	26.0	5.42	8.52
2016-08-29 09:00	2016-08-30 09:18	A	plant tap	Raw	TP01	RAW	<0.30	24.1	4.16	7.57
2016-09-06 08:35	2016-09-07 09:05	A	raw tap	Raw	TP01	RAW	<0.30	24.5	5.58	8.23
2016-09-12 07:50	2016-09-13 09:05		plant raw tap	Raw	TP01	RAW	<0.30	24.2	5.75	8.16
2016-09-19 09:00	2016-09-20 09:30		plant tap	Raw	TP01	RAW	<0.30	22.6	5.81	8.36
2016-09-27 08:30	2016-09-28 09:15		plant sink	Raw	TP01	RAW	<0.30	22.3	6.82	7.97
2016-10-03 09:30	2016-10-04 09:25		plant tap	Raw	TP01	RAW	<0.30	19.9	4.63	7.43
2016-10-10 09:30	2016-10-11 09:30		plant tap	Raw	TP01	RAW	<0.30	18.8	3.6	7.44
2016-10-17 08:30	2016-10-18 09:15		plant tap	Raw	TP01	RAW	<0.30	18.4	7.07	7.52
2016-10-24 09:30	2016-10-25 09:15		plant tap	Raw	TP01	RAW	<0.30	16.3	2.68	7.51
2016-11-01 08:10	2016-11-02 09:02		plant tap	Raw	TP01	RAW	<0.30	16.0	3.34	7.62
2016-11-07 09:00	2016-11-08 09:00		plant tap	Raw	TP01	RAW	<0.30	15.4	6.4	7.59
2016-11-14 09:00	2016-11-15 09:35		plant tap	Raw	TP01	RAW	<0.30	13.0	6.26	7.56
2016-11-21 09:00	2016-11-22 09:00		plant tap	Raw	TP01	RAW	<0.30	10.9	7.51	7.7
2016-11-28 09:00	2016-11-29 08:55		plant tap	Raw	TP01	RAW	<0.30	9.9	6.31	7.84
2016-12-05 08:30	2016-12-06 09:30		plant tap	Raw	TP01	RAW	<0.30	7.3	4.77	7.88

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-12-12 08:45	2016-12-13 09:15	B	plant tap	Raw	TP01	RAW	<0.30	6.9	3.53	7.86
2016-12-19 08:30	2016-12-20 10:10		plant tap	Raw	TP01	RAW	<0.30	5.6	2.7	7.9
2016-12-27 09:00	2016-12-28 09:05		plant tap	Raw	TP01	RAW	<0.30	6.2	2.06	7.92
2017-01-03 08:30	2017-01-04 09:40		plant tap	Raw	TP01	RAW	<0.30	7.4	2.4	7.81
2017-01-09 08:30	2017-01-10 09:15		plant tap	Raw	TP01	RAW	<0.30	5.5	2.66	7.81
2017-01-17 08:30	2017-01-18 09:00		plant tap	Raw	TP01	RAW	<0.30	6.2	1.91	7.75
2017-01-23 09:15	2017-01-24 09:15		plant tap	Raw	TP01	RAW	<0.30	6.2	2.64	7.56
2017-01-30 08:30	2017-01-31 09:30		plant tap	Raw	TP01	RAW	<0.30	7.6	2.5	7.83
2017-02-06 08:30	2017-02-07 15:50		plant tap	Raw	TP01	RAW	<0.30	7.5	2.79	7.89
2017-02-13 08:30	2017-02-14 09:30	A	plant tap	Raw	TP01	RAW	<0.30	6.3	3.26	7.9
2017-02-21 07:50	2017-02-22 09:25		plant tap	Raw	TP01	RAW	<0.30	7.9	3.59	8.19
2017-02-27 08:15	2017-02-28 09:30		plant tap	Raw	TP01	RAW	<0.30	8.7	3.57	8.14
2017-03-06 08:50	2017-03-07 10:10		plant tap	Raw	TP01	RAW	<0.30	8.9	3.68	8.22
2017-03-14 09:00	2017-03-15 09:10		plant tap	Raw	TP01	RAW	<0.30	9.2	4.12	7.98
2017-03-20 08:45	2017-03-21 09:10		plant tap	Raw	TP01	RAW	<0.30	10.1	4.23	8.13
2017-03-27 08:40	2017-03-28 09:30		plant tap	Raw	TP01	RAW	<0.30	10.5	3.42	8.13
2017-04-04 08:30	2017-04-05 09:05		plant tap	Raw	TP01	RAW	<0.30	9.7	4.38	8.24
2017-04-10 09:00	2017-04-11 09:10		plant tap	Raw	TP01	RAW	<0.30	13.8	6.86	8.22
2017-04-17 07:45	2017-04-18 09:10		plant tap	Raw	TP01	RAW	<0.30	15.9	4.93	7.9
2017-04-24 08:30	2017-04-25 09:30		plant tap	Raw	TP01	RAW	<0.30	17.0	3	7.91
2017-05-01 08:30	2017-05-02 09:30		plant tap	Raw	TP01	RAW	<0.30	13.6	3.77	7.93
2017-05-08 09:00	2017-05-09 09:25		plant tap	Raw	TP01	RAW	<0.30	15.4	3.33	8.07
2017-05-15 08:30	2017-05-16 09:30	A	plant tap	Raw	TP01	RAW	<0.30	20.5	3.53	8.18
2017-05-22 07:45	2017-05-23 09:45	A	plant tap	Raw	TP01	RAW	<0.30	17.6	4.83	7.99
2017-05-30 09:00	2017-05-31 09:23	A	plant tap	Raw	TP01	RAW	<0.30	19.5	4.83	7.99
2017-06-05 09:00	2017-06-06 09:30		plant tap	Raw	TP01	RAW	<0.30	19.8	3.47	7.77
2017-06-12 08:30	2017-06-13 09:00	A	plant tap	Raw	TP01	RAW	<0.30	25.1	4.46	8.72
2017-06-19 09:00	2017-06-20 09:15		plant tap	Raw	TP01	RAW	<0.30	25.6	3.57	8.66
2017-06-26 09:00	2017-06-27 09:15		plant tap sink	Raw	TP01	RAW	<0.30	23.6	4.48	8.44

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
Oskaloosa Municipal Water Department (IA6273005)										
2016-07-11 11:05	2016-07-12 09:05		raw water sample line	Raw	TP01	RAW	<0.30			
2016-07-18 07:30	2016-07-19 09:15	A	sample port	Raw	TP01	RAW	<0.30	16.6	1.04	7.32
2016-07-25 07:28	2016-07-26 09:20		2075 hwy 63 plant tap	Raw	TP01	RAW	<0.30	18.1	1.3	7.24
2016-08-01 07:36	2016-08-02 09:20		plant lab sink	Raw	TP01	RAW	<0.30	15.5	1.05	7.33
2016-08-08 07:17	2016-08-09 09:15	A	plant tap raw	Raw	TP01	RAW	<0.30	13.0	3.8	7.3
2016-08-15 07:28	2016-08-16 09:15	A	plant tap raw	Raw	TP01	RAW	<0.30	15.9	2.63	7.27
2016-08-22 07:38	2016-08-23 09:25		plant raw tap	Raw	TP01	RAW	<0.30	16.1	2.56	7.3
2016-08-29 07:00	2016-08-30 09:18	A	plant	Raw	TP01	RAW	<0.30	16.8	3.75	7.38
2016-09-06 07:13	2016-09-07 09:05		plant tap	Raw	TP01	RAW	<0.30	16.6	1.8	7.26
2016-09-12 07:20	2016-09-13 09:05		plant tap	Raw	TP01	RAW	<0.30	16.4	2.59	7.27
2016-09-19 07:11	2016-09-20 09:30		plant tap	Raw	TP01	RAW	<0.30	16.8	3.2	7.37
2016-09-26 07:29	2016-09-27 09:23		plant tap	Raw	TP01	RAW	<0.30	16.8	9.02	7.4
2016-10-03 07:35	2016-10-04 09:25		plant tap	Raw	TP01	RAW	<0.30	17.5	1.18	7.47
2016-10-10 07:22	2016-10-11 09:30		oskaloosa water plant 2075 hwy63 plant	Raw	TP01	RAW	<0.30	16.6	2.86	7.27
2016-10-17 07:25	2016-10-18 09:15		plant tap	Raw	TP01	RAW	<0.30	16.2	1.95	7.35
2016-10-24 07:28	2016-10-25 09:15		plant tap	Raw	TP01	RAW	<0.30	15.2	2.89	7.38
2016-10-30 07:28	2016-11-01 09:30	A	plant sink	Raw	TP01	RAW	<0.30	16.0	16.1	7.29
2016-11-07 07:36	2016-11-08 09:00		plant sink	Raw	TP01	RAW	<0.30	15.6	3.61	7.3
2016-11-14 07:28	2016-11-15 09:35		plant sink	Raw	TP01	RAW	<0.30	15.8	3.29	7.22
2016-11-21 09:00	2016-11-22 09:00		plant sink	Raw	TP01	RAW	<0.30	15.3	2.6	7.17
2016-11-28 07:20	2016-11-29 08:55		plant sink	Raw	TP01	RAW	<0.30	15.3	3.07	7.17
2016-12-05 07:11	2016-12-06 09:30		plant sink	Raw	TP01	RAW	<0.30	16.2	1.04	7.44
2016-12-12 07:35	2016-12-13 09:15		plant	Raw	TP01	RAW	<0.30	15.9		7.27
2016-12-19 07:36	2016-12-20 10:10		plant	Raw	TP01	RAW	<0.30	14.7	1.84	7.19
2016-12-27 09:37	2016-12-28 09:05		oskaloosa water plant sample tap	Raw	TP01	RAW	<0.30	11.6	4.28	7.29
2017-01-03 07:28	2017-01-04 09:40	A	plant	Raw	TP01	RAW	<0.30	14.3	1.29	7.32
2017-01-09 09:00	2017-01-10 09:15		oskaloosa water plant	Raw	TP01	RAW	<0.30	13.5	4.45	7.15

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-01-16 08:00	2017-01-17 09:00		plant	Raw	TP01	RAW	<0.30	14.1	4.52	7.14
2017-01-23 07:44	2017-01-24 09:15	A	plant	Raw	TP01	RAW	<0.30	12.1	10.5	7.23
2017-01-30 07:35	2017-01-31 09:30		plant	Raw	TP01	RAW	<0.30	12.0	5.38	7.32
2017-02-06 07:20	2017-02-07 15:50		plant	Raw	TP01	RAW	<0.30	13.2	2.06	7.22
2017-02-13 07:31	2017-02-14 09:30		plant	Raw	TP01	RAW	<0.30	12.6	3.32	7.26
2017-02-20 07:35	2017-02-21 09:30		plant	Raw	TP01	RAW	<0.30	13.8	2.36	7.22
2017-02-27 07:30	2017-02-28 09:30		plant raw collection	Raw	TP01	RAW	<0.30	12.8	2.46	7.13
2017-03-06 07:30	2017-03-07 10:10		plant sample point	Raw	TP01	RAW	<0.30	12.8	9.36	7.14
2017-03-13 09:00	2017-03-14 09:25		2075 hwy 63 plant sink	Raw	TP01	RAW	<0.30	14.1	2.96	7.17
2017-03-20 09:00	2017-03-21 09:10		oskaloosa sample point	Raw	TP01	RAW	<0.30	13.4	2.84	7.39
2017-03-27 07:46	2017-03-28 09:30		plant	Raw	TP01	RAW	<0.30	12.5	12.8	7.08
2017-04-03 07:31	2017-04-04 09:20		plant	Raw	TP01	RAW	<0.30	12.6	2.36	7.4
2017-04-10 07:33	2017-04-11 09:10		plant	Raw	TP01	RAW	<0.30	12.6	1.38	7.33
2017-04-17 07:31	2017-04-18 09:10		plant	Raw	TP01	RAW	<0.30	12.5	3.48	7.43
2017-04-24 07:30	2017-04-25 09:30	B	plant	Raw	TP01	RAW	<0.30	12.8	4.44	7.47
2017-05-01 07:25	2017-05-02 09:30		plant	Raw	TP01	RAW	<0.30	14.0	4.42	7.54
2017-05-08 07:22	2017-05-09 09:25		plant	Raw	TP01	RAW	<0.30	13.2	6.65	7.25
2017-05-15 07:30	2017-05-16 09:30		oskaloosa water plant	Raw	TP01	RAW	<0.30	13.7	2.29	7.26
2017-05-22 07:28	2017-05-23 09:45		plant	Raw	TP01	RAW	<0.30	13.7	8.39	7.27
2017-05-30 07:08	2017-05-31 09:23	A	plant	Raw	TP01	RAW	<0.30	13.6	1.05	7.16
2017-06-05 07:31	2017-06-06 09:30	A	plant	Raw	TP01	RAW	<0.30	13.5	6.92	7.43
2017-06-12 09:40	2017-06-13 09:00		oskaloosa water plant	Raw	TP01	RAW	<0.30	13.9	2.35	7.39
2017-06-19 07:33	2017-06-20 09:15	A	plant	Raw	TP01	RAW	<0.30	14.5	1.05	7.29
2017-06-26 07:39	2017-06-27 09:15		plant	Raw	TP01	RAW	<0.30	13.8	11.1	7.09
Ottumwa Water Works (IA9083012)										
2016-07-11 15:00	2016-07-12 09:05		raw water sample tap	Raw	TP01	RAW	<0.30			
2016-07-18 15:15	2016-07-19 09:15	A	lab raw water tap	Raw	TP01	RAW	<0.30	28.0	22	8.17
2016-07-25 15:30	2016-07-26 09:20		des moines river	Raw	TP01	RAW	<0.30	29.0	72	7.98
2016-08-02 15:00	2016-08-03 09:11		des moines river	Raw	TP01	RAW	<0.30	26.0	187.3	7.81

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-08-08 09:00	2016-08-09 09:15		des moines river lab tap	Raw	TP01	RAW	<0.30	28.0	17	8.26
2016-08-15 15:00	2016-08-16 09:15	A	des moines river lab tap	Raw	TP01	RAW	0.34	29.0	10	8.48
2016-08-22 15:00	2016-08-23 09:25		finished lab tap	Finished	01	01	<0.30	27.0	0.06	9.25
2016-08-30 09:00	2016-08-31 09:23		ottumwa raw lab tap	Raw	TP01	RAW	<0.30	27.0	66	7.92
2016-09-06 15:00	2016-09-07 09:05		lab tap	Raw	TP01	RAW	<0.30	26.0	17	8.17
2016-09-12 15:30	2016-09-13 09:05		lab tap	Raw	TP01	RAW	<0.30	26.0	16	8.34
2016-09-19 10:00	2016-09-19 12:18		plant raw water tap	Raw	TP01	RAW	<0.30	25.0	47	8.44
2016-09-26 15:15	2016-09-27 09:23		raw water plant tap	Raw	TP01	RAW	<0.30	25.0	33	8.17
2016-10-03 15:00	2016-10-04 11:00		lab raw water tap	Raw	TP01	RAW	<0.30	21.0	25	8.27
2016-10-10 15:30	2016-10-11 09:30		raw water plant tap	Raw	TP01	RAW	<0.30	20.0	19	8.29
2016-10-17 08:45	2016-10-17 11:48		raw water plant tap	Raw	TP01	RAW	<0.30	19.0	22	8.37
2016-10-24 15:00	2016-10-25 09:15		lab raw water tap	Raw	TP01	RAW	0.3	18.0	13	8.54
2016-10-31 15:00	2016-11-01 09:30	C	raw water lab tap	Raw	TP01	RAW	<0.30	17.0	13	8.25
2016-10-31 15:00	2016-11-01 09:30		finished lab tap	Finished	01	01	<0.30	17.0	0.06	9
2016-11-07 15:00	2016-11-08 09:00		raw water plant tap	Raw	TP01	RAW	<0.30	14.0	10	8.58
2016-11-14 08:40	2016-11-14 12:00		raw water lab tap	Raw	TP01	RAW	<0.30	14.0	12	8.57
2016-11-21 15:15	2016-11-22 09:00		raw water lab tap	Raw	TP01	RAW	<0.30	11.0	9	8.47
2016-11-28 15:00	2016-11-29 08:55		raw water lab tap	Raw	TP01	RAW	<0.30	12.0	7	8.6
2016-12-05 15:50	2016-12-06 09:30		raw water lab tap	Raw	TP01	RAW	<0.30	9.0	5	8.47
2016-12-19 15:00	2016-12-20 10:10		raw water lab tap	Raw	TP01	RAW	<0.30	5.0	3	8.5
2016-12-27 15:00	2016-12-28 09:05		raw water lab tap	Raw	TP01	RAW	<0.30	5.0	1.7	8.49
2017-01-03 15:00	2017-01-04 09:40		raw water plant tap	Raw	TP01	RAW	<0.30	6.0	7	8.13
2017-01-10 15:30	2017-01-11 09:08		raw water tap lab	Raw	TP01	RAW	<0.30	3.0	5	8.45
2017-01-17 15:15	2017-01-18 09:00		raw water lab tap	Raw	TP01	RAW	<0.30	3.0	12	8.1
2017-01-24 15:00	2017-01-25 09:11		raw water plant tap	Raw	TP01	RAW	<0.30	4.0	26	8.23
2017-01-30 15:00	2017-01-31 09:30		raw water plant tap	Raw	TP01	RAW	<0.30	4.0	33	7.88
2017-02-06 15:00	2017-02-07 15:50		raw water lab tap	Raw	TP01	RAW	<0.30	4.0	12	8.26
2017-02-13 15:30	2017-02-14 09:30		raw water lab tap	Raw	TP01	RAW	<0.30	5.0	9	
2017-02-21 15:20	2017-02-22 09:25		raw lab tap blending	Raw	TP01	RAW	<0.30	9.0	8	8.36

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-02-27 15:00	2017-02-28 09:30		raw water lab tap	Raw	TP01	RAW	<0.30	9.0	20	8.34
2017-03-06 15:00	2017-03-07 10:10		raw water lab tap	Raw	TP01	RAW	<0.30	10.0	18	8.47
2017-03-13 15:00	2017-03-14 09:25		raw water lab tap	Raw	TP01	RAW	<0.30	9.0	17	8.39
2017-03-20 15:00	2017-03-21 09:10		raw water lab tap	Raw	TP01	RAW	<0.30	10.0	11	8.53
2017-03-28 10:00	2017-03-29 09:20		lab raw blend	Raw	TP01	RAW	<0.30	12.0	11	8.38
2017-04-03 15:00	2017-04-04 09:20		raw water labtop	Raw	TP01	RAW	<0.30	11.0	29	8.42
2017-04-10 15:00	2017-04-11 09:10		raw water lab tap	Raw	TP01	RAW	<0.30	14.0	24	8.2
2017-04-17 15:00	2017-04-18 09:10		raw water lab tap	Raw	TP01	RAW	<0.30	17.0	94	8.35
2017-04-24 15:00	2017-04-25 09:30		raw water lab tap	Raw	TP01	RAW	<0.30	18.0	37	8.24
2017-05-01 15:00	2017-05-02 09:30		raw water lab tap	Raw	TP01	RAW	<0.30	14.0	172	9.01
2017-05-09 15:00	2017-05-10 09:18		raw water lab tap	Raw	TP01	RAW	<0.30	16.0	20	8.17
2017-05-15 14:30	2017-05-16 09:30	B	raw water lab tap	Raw	TP01	RAW	<0.30	21.0	11	8.44
2017-05-22 15:00	2017-05-23 09:45		raw water lab tap	Raw	TP01	RAW	<0.30	20.0	37	8.16
2017-05-30 15:00	2017-05-31 09:23		raw water lab tap	Raw	TP01	RAW	<0.30	20.0	9	8.33
2017-06-05 15:00	2017-06-06 09:30		raw water lab tap	Raw	TP01	RAW	<0.30	23.0	10	8.15
2017-06-12 15:00	2017-06-13 09:00		raw water lab tap	Raw	TP01	RAW	<0.30	26.0	19	8.13
2017-06-19 15:00	2017-06-20 09:15		raw water lab tap	Raw	TP01	RAW	<0.30	28.0	13	8.37
Panora Water Works (IA3971026)										
2016-07-11 07:25	2016-07-12 09:05		2211 soldier tr	Raw	TP01	TP01	<0.30			
2016-07-18 07:45	2016-07-19 09:15		2211 soldier tr	Raw	TP01	TP01	<0.30	25.6	20	8.4
2016-07-25 07:30	2016-07-26 09:20	A	2211 soldier tr	Raw	TP01	RAW	0.43	27.2	22	8.2
2016-08-01 07:40	2016-08-02 09:20	A, B	2211 soldier tr	Raw	TP01	RAW	<0.30	26.1	23	8.1
2016-08-01 07:40	2016-08-02 09:20	A, B	01 finished	Finished	01	01	<0.30	26.7		8.1
2016-08-08 07:45	2016-08-09 09:15	A	2211 soldier tr	Raw	TP01	RAW	<0.30	25.6	20	7.9
2016-08-08 07:45	2016-08-09 09:15	A	2211 soldier tr	Finished	01	01	<0.30	26.7	0.05	8.5
2016-08-15 07:45	2016-08-16 09:15	A	2211 soldier tr	Raw	TP01	RAW	<0.30	26.1	25	8.3
2016-08-15 07:45	2016-08-16 09:15	A	2211 soldier tr	Finished	01	01	<0.30	26.7	0.05	8.2
2016-08-22 07:45	2016-08-23 09:25	A	2211 soldier tr	Raw	TP01	RAW	<0.30	23.9	22	8.3
2016-08-29 08:00	2016-08-30 09:18	A	2211 soldier tr	Raw	TP01	RAW	0.36	23.3	19	8.4

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-09-06 08:00	2016-09-07 09:05		2211 soldier tr	Raw	TP01	RAW	<0.30	22.8	20	7.8
2016-09-06 08:00	2016-09-07 09:05		2211 soldier tr	Finished	01	01	<0.30	23.3	0.04	7.9
2016-09-12 08:00	2016-09-13 09:05		2211 soldier tr	Raw	TP01	RAW	<0.30	21.7	23	8.2
2016-09-12 08:00	2016-09-13 09:05		2211 soldier tr	Finished	01	01	<0.30	23.3	0.05	8.5
2016-09-19 08:00	2016-09-20 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	21.7	50	8.3
2016-09-19 08:00	2016-09-20 09:30		2211 soldier tr	Finished	01	01	<0.30	22.8	0.05	7.9
2016-09-26 08:00	2016-09-27 09:23		2211 soldier tr	Raw	TP01	RAW	<0.30	22.2	22	8.2
2016-09-26 08:00	2016-09-27 09:23		2211 soldier tr	Finished	01	01	<0.30	23.3	0.05	8.5
2016-10-03 08:00	2016-10-04 09:25		2211 soldier tr	Raw	TP01	RAW	<0.30	18.9	19	8.3
2016-10-10 08:00	2016-10-11 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	17.2	16	8.3
2016-10-17 08:00	2016-10-18 09:15		2211 soldier tr	Raw	TP01	RAW	<0.30	16.4	20	8.1
2016-10-24 08:00	2016-10-25 09:15		2211 soldier trail	Raw	TP01	RAW	<0.30	15.0	18	8.1
2016-10-31 08:00	2016-11-01 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	14.4	22	8.4
2016-11-07 08:00	2016-11-08 09:00		2211 soldier tr	Raw	TP01	RAW	<0.30	13.9	22	8.1
2016-11-14 08:00	2016-11-15 09:35		2211 soldier tr	Raw	TP01	RAW	<0.30	12.2	27	8.2
2016-11-21 08:00	2016-11-22 09:00		2211 soldier tr	Raw	TP01	RAW	<0.30	9.4	20	8.2
2016-11-28 08:00	2016-11-29 08:55		2211 soldier tr	Raw	TP01	RAW	<0.30	8.3	20	8.4
2016-12-05 08:00	2016-12-06 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	6.7	16	8.4
2016-12-12 08:00	2016-12-13 09:15		2211 soldier tr	Raw	TP01	RAW	<0.30	2.2	11	8.5
2016-12-19 08:00	2016-12-20 10:10		2211 soldier tr	Raw	TP01	RAW	<0.30	1.7	10	8.4
2016-12-27 08:00	2016-12-28 09:05		2211 soldier tr	Raw	TP01	RAW	<0.30	3.3	11	8.2
2017-01-03 08:00	2017-01-04 09:40		2211 soldier tr	Raw	TP01	RAW	<0.30	2.8	29	8.1
2017-01-09 08:00	2017-01-10 09:15		2211 soldier tr	Raw	TP01	RAW	<0.30	2.2	18	8.2
2017-01-16 08:00	2017-01-17 09:00		2211 soldier tr	Raw	TP01	RAW	<0.30	3.3	10	8
2017-01-23 08:00	2017-01-24 09:15		2211 soldier tr	Raw	TP01	RAW	<0.30	2.8		8.2
2017-01-30 08:00	2017-01-31 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	2.2	80	7.8
2017-02-06 08:00	2017-02-07 15:50		2211 soldier tr	Raw	TP01	RAW	<0.30	2.8	29	
2017-02-13 08:00	2017-02-14 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	3.3	24	8.1
2017-02-20 08:00	2017-02-21 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	5.0	44	8.2

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-02-27 08:00	2017-02-28 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	4.4	19	8.2
2017-03-06 08:00	2017-03-07 10:10		2211 soldier tr	Raw	TP01	RAW	<0.30	6.7	22	8.4
2017-03-13 08:00	2017-03-14 09:25		2211 soldier tr	Raw	TP01	RAW	<0.30	5.0	20	8.4
2017-03-20 08:00	2017-03-21 09:10		2211 soldier tr	Raw	TP01	RAW	<0.30	6.7	19	8.2
2017-03-27 08:00	2017-03-28 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	7.8	28	8.3
2017-04-03 08:00	2017-04-04 09:20		2211 soldier tr	Raw	TP01	RAW	<0.30	8.3	40	8.1
2017-04-10 08:00	2017-04-11 09:10		2211 soldier tr	Raw	TP01	RAW	<0.30	11.1	35	8.1
2017-04-17 08:00	2017-04-18 09:10		2211 soldier tr	Raw	TP01	RAW	<0.30	14.4	38	8
2017-04-24 08:00	2017-04-27 08:55	A	2211 soldier tr	Raw	TP01	RAW	<0.30	14.4	35	8.3
2017-05-01 08:00	2017-05-02 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	11.7	65	8.2
2017-05-08 08:00	2017-05-09 09:25		2211 soldier tr	Raw	TP01	RAW	<0.30	15.6	20	8.1
2017-05-15 08:00	2017-05-16 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	18.3	19	8.1
2017-05-22 08:00	2017-05-23 09:45		2211 soldier tr	Raw	TP01	RAW	<0.30	13.9	41	8
2017-05-30 08:00	2017-05-31 09:23		2211 soldier tr	Raw	TP01	RAW	<0.30	16.7	27	8
2017-06-05 08:00	2017-06-06 09:30		2211 soldier tr	Raw	TP01	RAW	<0.30	22.2	17	8.1
2017-06-12 08:00	2017-06-13 09:00		2211 soldier tr	Raw	TP01	RAW	<0.30	23.3	19	7.9
2017-06-19 08:00	2017-06-20 09:15		2211 soldier tr	Raw	TP01	RAW	<0.30	24.4	26	8.3
2017-06-26 08:00	2017-06-27 09:15		2211 soldier trl	Raw	TP01	RAW	<0.30	22.2	29	8.1
Rathbun Regional Water Association (Rathbun) (IA0400900)										
2016-07-11 08:40	2016-07-11 11:41		caisson	Raw	TP01	TP01	<0.30			
2016-07-18 13:00	2016-07-19 09:15		chariton river	Raw	TP01	TP01	<0.30	22.0	61.5	7.22
2016-07-18 13:15	2016-07-19 09:15		rathbun lake caisson	Raw	TP02	TP02	<0.30	25.9	8.37	8.06
2016-07-25 13:30	2016-07-26 09:20		caisson raw tap	Raw	TP02	RAW	0.52	27.7	8.5	8.34
2016-07-25 13:40	2016-07-26 09:20		chariton river	Raw	TP01	RAW	<0.30	25.6	19.1	7.39
2016-08-01 10:00	2016-08-02 09:20	A	chariton river	Raw	TP01	RAW	<0.30	21.8	82.6	7.01
2016-08-01 10:00	2016-08-02 09:20		caisson rathbun lake	Raw	TP02	RAW	<0.30	25.1	14.8	7.52
2016-08-01 10:15	2016-08-02 09:20		plant tap (finished)	Finished	02	02	<0.30	24.9		8.37
2016-08-08 12:45	2016-08-09 09:15		chariton river	Raw	TP01	RAW	<0.30	24.2	46.5	7.38
2016-08-08 12:45	2016-08-09 09:15		caisson sample tap	Raw	TP02	RAW	<0.30	25.3	10.3	7.39

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-08-15 10:45	2016-08-16 09:15		chariton river	Raw	TP01	RAW	<0.30	24.8	21.3	7.38
2016-08-15 10:45	2016-08-16 09:15	A	rathbun lake caisson	Raw	TP02	RAW	0.54	26.0	6.78	7.87
2016-08-22 09:00	2016-08-23 09:25		rathbun lake caisson	Raw	TP02	RAW	0.64	25.4	6.73	8.07
2016-08-22 09:00	2016-08-23 09:25		chariton river	Raw	TP01	RAW	0.59	25.1	12.1	7.94
2016-08-22 09:00	2016-08-23 09:25	B	plant tap(tp02-west plant)	Finished	02	02	<0.30	26.1	0.054	8.16
2016-08-29 13:30	2016-08-30 09:18		chariton river	Raw	TP01	RAW	<0.30	26.6	22.4	7.56
2016-08-29 13:30	2016-08-30 09:18		rathbun lake caisson	Raw	TP02	RAW	<0.30	25.8	10	7.61
2016-08-29 13:30	2016-08-30 09:18		plant tap	Finished	01	01	<0.30	25.0	0.063	8.13
2016-08-29 13:30	2016-08-30 09:18		plant tap	Finished	02	02	<0.30	25.0	0.079	8.26
2016-09-06 09:00	2016-09-07 09:05		rathbun lake caisson	Raw	TP02	RAW	<0.30	24.5	10.2	7.51
2016-09-06 09:00	2016-09-07 09:05		chariton river	Raw	TP01	RAW	<0.30	24.5	12.5	7.56
2016-09-12 11:45	2016-09-13 09:05		rathbun lake caisson	Raw	TP02	RAW	1.2	24.8	8.21	7.8
2016-09-12 11:50	2016-09-13 09:05		chariton river	Raw	TP01	RAW	0.87	24.8	12.2	7.81
2016-09-19 09:30	2016-09-20 09:30		chariton river	Raw	TP01	RAW	0.52	23.0	11.6	7.82
2016-09-19 09:30	2016-09-20 09:30		plant tap	Finished	01	01	<0.30	23.6	0.066	8.29
2016-09-19 09:45	2016-09-20 09:30	A	rathbun lake caisson	Raw	TP02	RAW	0.59	23.2	9.85	7.72
2016-09-19 09:45	2016-09-20 09:30	A	plant tap	Finished	02	02	<0.30	24.1	0.072	8.13
2016-09-26 09:15	2016-09-27 09:23		plant tap	Finished	02	02	<0.30	23.4	0.055	8.07
2016-09-26 09:30	2016-09-27 09:23		plant tap	Finished	01	01	<0.30	23.5	0.064	8.23
2016-09-26 09:45	2016-09-27 09:23		rathbun lake caisson	Raw	TP02	RAW	1.0	22.7	8.39	7.8
2016-09-26 09:45	2016-09-27 09:23		chariton river	Raw	TP01	RAW	0.80	21.9	10.5	7.89
2016-10-03 09:55	2016-10-04 09:25		rathbun lake caisson	Raw	TP02	RAW	<0.30	20.7	10.4	7.67
2016-10-03 10:00	2016-10-04 09:25	A	chariton river	Finished	01	01	<0.30	21.6	0.068	8.17
2016-10-03 10:05	2016-10-04 09:25		plant tap	Finished	02	02	<0.30	21.2	0.077	8.17
2016-10-03 10:15	2016-10-04 09:25	A	chariton river	Raw	TP01	RAW	0.33	21.3	12.6	7.7
2016-10-10 10:30	2016-10-10 13:45		rathbun lake caisson	Raw	TP02	RAW	<0.30	20.3	10.7	7.66
2016-10-10 10:30	2016-10-10 13:45		plant tap	Finished	01	01	<0.30	20.4	0.048	8.27
2016-10-10 10:45	2016-10-10 13:45		chariton river	Raw	TP01	RAW	<0.30	20.1	13.3	7.6
2016-10-17 09:30	2016-10-18 09:15		caisson lake rathbun	Raw	TP02	RAW	<0.30	15.3	14.9	7.64

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-10-17 09:35	2016-10-18 09:15		chariton river	Raw	TP01	RAW	<0.30	18.4	16.5	7.68
2016-10-24 10:40	2016-10-25 09:15		chariton river	Raw	TP01	RAW	0.52	17.3	10.5	7.7
2016-10-24 10:50	2016-10-25 09:15		rathbun lake caisson	Raw	TP02	RAW	0.33	17.9	9.45	7.63
2016-10-31 09:45	2016-11-01 09:30		rathbun lake caisson	Raw	TP02	RAW	<0.30	17.2	9.5	7.81
2016-10-31 10:00	2016-11-01 09:30		chariton river	Raw	TP01	RAW	<0.30	16.2	9.39	7.83
2016-10-31 10:15	2016-11-01 09:30		etp plant tap (tp01)	Finished	01	01	<0.30	17.9	0.075	8.19
2016-10-31 10:30	2016-11-01 09:30		wtp plant tap (tp02)	Finished	02	02	<0.30	16.8	0.068	8.26
2016-11-07 10:45	2016-11-08 09:00		chariton river	Raw	TP01	RAW	<0.30	16.6	9.8	7.73
2016-11-07 11:00	2016-11-08 09:00	A	rathbun lake caisson	Raw	TP02	RAW	<0.30	16.8	9.47	7.66
2016-11-14 09:05	2016-11-14 12:00		rathbun lake caisson	Raw	TP02	RAW	<0.30	15.1	8.37	7.65
2016-11-14 09:30	2016-11-14 12:00		chariton river	Raw	TP01	RAW	<0.30	14.2	8.04	7.69
2016-11-21 11:45	2016-11-22 09:00		rathbun lake caisson	Raw	TP02	RAW	<0.30	12.5	9.58	7.8
2016-11-21 11:55	2016-11-22 09:00		chariton river	Raw	TP01	RAW	<0.30	13.0	9.85	7.86
2016-11-28 09:15	2016-11-29 08:55		rathbun lake caisson	Raw	TP02	RAW	<0.30	11.3	7.47	7.75
2016-11-28 09:30	2016-11-29 08:55		chariton river	Raw	TP01	RAW	<0.30	12.8	7.12	7.82
2016-12-05 09:45	2016-12-06 09:30		chariton river	Raw	TP01	RAW	<0.30	9.6	6.37	7.94
2016-12-05 10:00	2016-12-06 09:30		rathbun lake caisson	Raw	TP02	RAW	<0.30	9.7	6.55	8.07
2016-12-12 10:05	2016-12-12 13:17		rathbun lake caisson	Raw	TP02	RAW	<0.30	9.9	6.88	8.01
2016-12-12 10:20	2016-12-12 13:17		chariton river	Raw	TP01	RAW	<0.30	7.1	6.34	8.13
2016-12-19 11:00	2016-12-20 10:10		rathbun lake caisson	Raw	TP02	RAW	<0.30	4.7	5.32	8.28
2016-12-19 11:15	2016-12-20 10:10		chariton river	Raw	TP01	RAW	<0.30	4.1	5.78	8.23
2016-12-27 09:00	2016-12-28 09:05		chariton river (etp)	Raw	TP01	RAW	<0.30	4.8	4.83	7.96
2016-12-27 09:15	2016-12-28 09:05		rathbun lake caisson (wtp)	Raw	TP02	RAW	<0.30	5.2	4.67	8.07
2017-01-03 09:30	2017-01-04 09:40		chariton river	Raw	TP01	RAW	<0.30	5.2	4.55	7.78
2017-01-03 09:45	2017-01-04 09:40		rathbun lake caisson (wtp)	Raw	TP02	RAW	<0.30	6.5	4.2	8.06
2017-01-09 10:00	2017-01-10 09:15		chariton river	Raw	TP01	RAW	<0.30	4.0	4.39	7.89
2017-01-09 10:00	2017-01-10 09:15		raw rathbun lake	Raw	TP02	RAW	<0.30	3.9	4.39	7.91
2017-01-16 10:15	2017-01-17 08:58		caisson rathbun lake	Raw	TP02	RAW	<0.30	6.5	3.86	7.83
2017-01-16 10:30	2017-01-17 09:00		chariton river	Raw	TP01	RAW	<0.30	6.3	4.84	7.83

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-01-23 09:50	2017-01-23 13:21		caisson lake rathbun	Raw	TP02	RAW	<0.30	5.6	3.62	7.73
2017-01-23 10:10	2017-01-23 13:21		chariton river	Raw	TP01	RAW	<0.30	5.4	4.67	7.78
2017-01-30 09:30	2017-01-31 09:30		rathbun lake caisson	Raw	TP02	RAW	<0.30	6.9	3.8	7.8
2017-01-30 09:45	2017-01-31 09:30		chariton river	Raw	TP01	RAW	<0.30	5.7	3.6	7.84
2017-02-06 10:00	2017-02-07 15:50		cassion lake rathbun	Raw	TP02	RAW	<0.30	7.6	4.01	7.97
2017-02-06 10:15	2017-02-07 15:50		chariton river	Raw	TP01	RAW	<0.30	5.5	3.48	8.03
2017-02-13 08:30	2017-02-13 11:43		rathbun lake caisson	Raw	TP02	RAW	<0.30	7.3	3.75	8.08
2017-02-13 09:00	2017-02-13 11:43		chariton river	Raw	TP01	RAW	<0.30	4.5	3.83	8.04
2017-02-21 09:15	2017-02-22 09:25		chariton river	Raw	TP01	RAW	<0.30	8.2	3.28	7.3
2017-02-21 09:30	2017-02-22 09:25		rathbun lake caisson	Raw	TP02	RAW	<0.30	8.1	3.01	8.09
2017-02-27 09:30	2017-02-28 09:30	C	rathbun lake caisson	Raw	TP02	RAW		7.2	3.49	8.12
2017-02-27 10:00	2017-02-28 09:30		chariton river	Raw	TP01	RAW	<0.30	6.4	3.48	8.12
2017-02-28 10:45	2017-03-01 10:15		rathbun lake cassion	Raw	TP02	RAW	<0.30	9.2	3.42	8.18
2017-03-06 08:30	2017-03-07 10:10		rathbun lake cassion	Raw	TP02	RAW	<0.30	8.7	3.83	8.15
2017-03-06 08:45	2017-03-07 10:10		chariton river	Raw	TP01	RAW	<0.30	8.9	4.58	8.04
2017-03-13 09:00	2017-03-13 13:19		chariton river	Raw	TP01	RAW	<0.30	8.0	4.57	7.85
2017-03-13 09:00	2017-03-13 13:19	B	rathbun lake caisson	Raw	TP02	RAW	<0.30	10.3	5	8.07
2017-03-20 09:15	2017-03-20 11:40		chariton river	Raw	TP01	RAW	<0.30	7.8	5.82	8.07
2017-03-20 09:30	2017-03-20 11:40		rathbun lake caisson	Raw	TP02	RAW	<0.30	8.4	6.01	8.07
2017-03-27 09:20	2017-03-28 09:30		caisson lake rathbun	Raw	TP02	RAW	<0.30	9.3	5.97	8.07
2017-03-27 09:25	2017-03-28 09:30		chariton river	Raw	TP01	RAW	<0.30	8.7	5.54	7.93
2017-04-03 08:50	2017-04-04 09:20		caisson lake rathbun	Raw	TP02	RAW	<0.30	10.2	7.48	7.99
2017-04-03 08:55	2017-04-04 09:20		chariton river	Raw	TP01	RAW	<0.30	9.6	7.24	8.05
2017-04-10 10:00	2017-04-10 14:45		caisson lake rathbun	Raw	TP02	RAW	<0.30	12.5	8.92	7.67
2017-04-10 10:05	2017-04-10 14:45		chariton river	Raw	TP01	RAW	<0.30	12.7	8.84	7.73
2017-04-17 09:45	2017-04-18 09:10		chariton river	Raw	TP01	RAW	<0.30	14.9	10.7	8.19
2017-04-17 10:00	2017-04-18 09:10		rathbun lake caisson	Raw	TP02	RAW	<0.30	14.8	10.8	8.18
2017-04-24 11:05	2017-04-25 09:30		chariton river	Raw	TP01	RAW	<0.30	15.7	16	8.1
2017-04-24 11:15	2017-04-25 09:30		rathbun lake caisson	Raw	TP02	RAW	<0.30	15.8	14.8	8.02

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-05-01 08:40	2017-05-02 09:30		caisson lake rathbun	Raw	TP02	RAW	<0.30	13.9	14.8	7.83
2017-05-01 08:45	2017-05-02 09:30		chariton river	Raw	TP01	RAW	<0.30	13.6	14.7	8
2017-05-08 09:00	2017-05-09 09:25		chariton river	Raw	TP01	RAW	<0.30	13.9	12.5	7.83
2017-05-08 09:15	2017-05-09 09:25		rathbun lake caisson	Raw	TP02	RAW	<0.30	14.3	12	7.77
2017-05-15 09:00	2017-05-15 12:20		chariton river	Raw	TP01	RAW	<0.30	17.2	16.5	7.76
2017-05-15 09:15	2017-05-15 12:20		caisson lake rathbun	Raw	TP02	RAW	<0.30	16.9	13.2	7.81
2017-05-22 08:40	2017-05-23 09:45		rathbun lake caisson	Raw	TP02	RAW	<0.30	17.4	17.4	7.91
2017-05-22 08:45	2017-05-23 09:45		chariton river	Raw	TP01	RAW	<0.30	17.1	18	7.84
2017-05-30 08:45	2017-05-31 09:23		lake rathbun caisson	Raw	TP02	RAW	<0.30	20.1	22	7.95
2017-05-30 08:50	2017-05-31 09:23		chariton river	Raw	TP01	RAW	<0.30	19.6	20.9	7.92
2017-06-05 10:25	2017-06-06 13:22		rathbun lake cassion	Raw	TP02	RAW	<0.30	21.2	19.3	7.64
2017-06-05 10:35	2017-06-06 09:30	A	chariton river intake	Raw	TP01	RAW	<0.30	20.8	65.2	7.53
2017-06-12 09:30	2017-06-12 13:45		chariton river	Raw	TP01	RAW	<0.30	20.7	49.3	7.64
2017-06-12 09:30	2017-06-12 13:45		rathbun lake caisson	Raw	TP02	RAW	<0.30	22.0	20.5	7.44
2017-06-19 10:00	2017-06-20 09:15		chariton river	Raw	TP01	RAW	<0.30	19.3	37.9	7.7
2017-06-19 10:15	2017-06-20 09:15		rathbun lake	Raw	TP02	RAW	<0.30	19.9	32.4	7.67
2017-06-26 10:25	2017-06-27 09:15		caisson lake rathbun	Raw	TP02	RAW	<0.30	23.1	10.5	8.2
2017-06-26 10:35	2017-06-27 09:15		chariton river	Raw	TP01	RAW	<0.30	20.5	62.4	7.44
Spirit Lake Waterworks (IA3070078)										
2016-07-11 10:15	2016-07-11 11:02		tp01 raw tap	Raw	TP01	RAW	0.79			
2016-07-18 08:45	2016-07-18 10:54		tp/01 raw tap	Raw	TP01	RAW	5.01	22.8	7.75	8.9
2016-07-18 09:00	2016-07-18 10:58		tp/01 sep	Finished	01	01	<0.30	22.8		8.81
2016-07-22 09:00	2016-07-25 10:32	A	tp01 raw tap	Raw	TP01	RAW	2.3	23.9	5.92	8.6
2016-07-25 10:00	2016-07-25 10:32		01 lab sink	Finished	01	01	<0.30	25.0		8.7
2016-07-25 10:10	2016-07-25 10:32		tp01 raw	Raw	TP01	RAW	5.01	24.4	7.48	8.5
2016-07-27 09:15	2016-08-01 10:52	E	tp01 raw tap	Raw	TP01	RAW	2.5	23.9	6.48	8.1
2016-07-29 09:00	2016-08-01 10:52	A, F	raw tap	Raw	TP01	RAW	5.01	23.9	8.2	8.52
2016-07-29 09:10	2016-08-01 10:52	A	lab sink	Finished	01	01	<0.30	22.2		8.86
2016-08-01 09:00	2016-08-01 10:52	F	raw tap	Raw	TP01	RAW	5.01	23.9	3.16	8.56

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-08-01 09:15	2016-08-01 10:52		finished	Finished	01	01	<0.30	23.9		8.6
2016-08-08 10:20	2016-08-08 11:38		raw tap tp/01	Raw	TP01	RAW	1.6	23.9	8.16	8.52
2016-08-08 10:30	2016-08-08 11:38		lab sink 01	Finished	01	01	<0.30	23.9	0.03	8.84
2016-08-15 10:10	2016-08-15 11:13	A	raw tap tp/01	Raw	TP01	RAW	3.4	23.9	7.9	8.54
2016-08-15 10:15	2016-08-15 11:13	A	lab sink 01	Finished	01	01	<0.30	23.9	0.03	8.83
2016-08-22 10:30	2016-08-22 11:52		tp/01 raw tap	Raw	TP01	RAW	1.2	22.2	8.32	8.52
2016-08-22 10:45	2016-08-22 11:52		01 finished tap	Finished	01	01	<0.30	22.2	0.04	8.82
2016-08-29 10:00	2016-08-29 10:31		tp01 raw tap	Raw	TP01	RAW	<0.30	21.1	5.34	8.7
2016-08-29 10:10	2016-08-29 10:31		01 finished	Finished	01	01	<0.30	22.8	0.03	8.8
2016-09-06 09:00	2016-09-06 10:42		tp/01 raw tap	Raw	TP01	RAW	<0.30	21.1	7.19	8.69
2016-09-06 09:15	2016-09-06 10:42		tp/01 lab sink	Finished	01	01	<0.30	21.1	0.04	8.95
2016-09-12 09:00	2016-09-12 10:31		raw tap	Raw	TP01	RAW	5.8	19.4	9.85	8.8
2016-09-19 08:40	2016-09-19 09:07		finished	Finished	01	01	<0.30	19.4	0.03	8.6
2016-09-19 08:45	2016-09-19 09:07		raw tap	Raw	TP01	RAW	4.8	18.3	5.91	8.8
2016-09-26 08:45	2016-09-26 11:13		finished	Finished	01	01	<0.30	20.6	0.02	8.6
2016-09-26 09:00	2016-09-26 11:13		raw tap	Raw	TP01	RAW	3.4	18.3	8.32	8.9
2016-10-03 08:15	2016-10-03 10:28		tp01	Raw	TP01	RAW	0.88	17.2	8.03	8.81
2016-10-03 08:20	2016-10-03 10:28		01	Finished	01	01	<0.30	17.2	0.03	8.91
2016-10-10 10:25	2016-10-10 10:47	A	01 finished	Finished	01	01	<0.30	16.1	0.03	8.9
2016-10-10 10:30	2016-10-10 10:47	D	tp01 raw tap	Raw	TP01	RAW	0.52	13.9	10.56	8.8
2016-10-17 08:30	2016-10-17 11:08		tp01 raw	Raw	TP01	RAW	1.6	13.3	9.85	8.8
2016-10-17 08:30	2016-10-17 11:08		01 finished	Finished	01	01	<0.30	14.4	0.02	8.9
2016-10-24 08:45	2016-10-24 09:11		tp01 raw	Raw	TP01	RAW	0.47	11.7	9.57	9
2016-10-24 08:45	2016-10-24 09:11		01 finished	Finished	01	01	<0.30	13.3	0.01	8.9
2016-10-31 10:15	2016-10-31 10:30		tp01 raw	Raw	TP01	RAW	0.3	10.6	5.75	8.7
2016-10-31 10:15	2016-10-31 10:30		01 finished	Finished	01	01	<0.30	12.8	0.02	8.8
2016-11-07 11:00	2016-11-07 11:39		tp01 raw	Raw	TP01	RAW	0.44	11.1	5.91	8.8
2016-11-14 09:30	2016-11-14 10:39		tp01 raw	Raw	TP01	RAW	<0.30	8.9	7.32	8.8
2016-11-14 09:33	2016-11-14 10:39		01 finished	Finished	01	01	<0.30	11.1	0.02	8.7

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-11-21 09:00	2016-11-21 10:29		tp01 raw tap	Raw	TP01	RAW	0.34	5.6	9.29	8.9
2016-11-28 08:20	2016-11-28 09:02		tp/01 raw tap	Raw	TP01	RAW	<0.30	5.0	9.26	8.73
2016-11-28 08:30	2016-11-28 09:02		01	Finished	01	01	<0.30	12.8	0.02	8.92
2016-12-05 08:30	2016-12-05 09:06		tp01 raw tap	Raw	TP01	RAW	<0.30	3.3	5.48	8.7
2016-12-12 10:00	2016-12-12 10:34		tp01 raw	Raw	TP01	RAW	0.4	0.6	5.33	8.8
2016-12-19 09:30	2016-12-19 10:08	B	tp01 raw	Raw	TP01	RAW	<0.30	0.6	4.91	8.8
2016-12-19 09:30	2016-12-19 10:08	B	01 finished	Finished	01	01	<0.30	2.2	0.02	8.9
2016-12-27 08:30	2016-12-28 09:05		tp01 raw tap	Raw	TP01	RAW	<0.30	0.6	4.78	8.8
2017-01-03 09:00	2017-01-03 11:20		tp01 raw tap	Raw	TP01	RAW	<0.30	1.7	4.49	8.7
2017-01-09 10:15	2017-01-09 10:35		tp/01 raw tap	Raw	TP01	RAW	<0.30	1.7	4.77	8.68
2017-01-16 10:00	2017-01-16 10:37		tp01 raw tap	Raw	TP01	RAW	<0.30	2.2	5.05	8.7
2017-01-23 08:30	2017-01-23 08:58		tp01 raw tap	Raw	TP01	RAW	<0.30	2.8	5.34	8.8
2017-01-30 08:30	2017-01-30 09:02		tp/01 raw tap	Raw	TP01	RAW	<0.30	2.8	5.75	8.71
2017-02-06 10:00	2017-02-06 10:39		tp01 raw tap	Raw	TP01	RAW	<0.30	3.9	4.22	8.9
2017-02-13 08:30	2017-02-13 10:28		tp01 raw tap	Raw	TP01	RAW	<0.30	3.3	4.63	8.8
2017-02-20 08:30	2017-02-20 08:54		raw tap	Raw	TP01	TP01	<0.30	3.9	4.63	8.63
2017-02-27 08:30	2017-02-27 08:50		tp01 raw tap	Raw	TP01	RAW	<0.30	4.4	4.92	8.8
2017-03-06 08:15	2017-03-06 08:58		tp01 raw	Raw	TP01	RAW	<0.30	5.0	4.08	8.3
2017-03-13 08:30	2017-03-13 10:11		tp/01 raw tap	Raw	TP01	TP01	<0.30	0.6	4.49	8.58
2017-03-20 09:00	2017-03-20 10:49		tp01 raw tap	Raw	TP01	RAW	<0.30	1.7	4.36	8.62
2017-03-27 09:25	2017-03-27 10:52		tp01 raw tap	Raw	TP01	RAW	<0.30	2.8	4.49	8.4
2017-04-03 08:45	2017-04-03 09:07		tp01 raw tap	Raw	TP01	TP01	<0.30	5.0	4.78	8.4
2017-04-10 10:15	2017-04-10 10:33		spirit lake water	Raw	TP01	TP01	<0.30	7.8	5.33	8.4
2017-04-17 09:30	2017-04-17 10:31		raw tap	Raw	TP01	TP01	<0.30	10.0	4.00	8.4
2017-04-24 08:25	2017-04-24 09:03		tp/01 raw tap	Raw	TP01	TP01	<0.30	10.6	4.78	8.3
2017-05-01 08:30	2017-05-01 09:09		raw tap	Raw	TP01	RAW	<0.30	7.2	6.18	8.31
2017-05-08 08:15	2017-05-08 08:47		raw tap	Raw	TP01	RAW	<0.30	9.4	5.91	8.4
2017-05-15 08:15	2017-05-15 09:22		raw tap	Raw	TP01	TP01	<0.30	13.9	6.88	8.48
2017-05-22 10:15	2017-05-22 11:16		raw tap	Raw	TP01	TP01	<0.30	12.8	5.46	8.35

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-05-30 09:15	2017-05-30 10:23		raw tap	Raw	TP01	RAW	<0.30	14.4	7.03	8.5
2017-06-05 08:30	2017-06-05 09:00		tp01 raw tap	Raw	TP01	RAW	<0.30	18.9	6.32	8.6
2017-06-12 08:15	2017-06-12 11:16		tp01 raw tap	Raw	TP01	RAW	<0.30	20.6	6.9	8.5
2017-06-19 08:30	2017-06-19 10:11		tp01 raw tap	Raw	TP01	RAW	<0.30	21.1	11.11	8.5
2017-06-26 09:00	2017-06-26 10:54	D	tp/01 raw tap	Raw	TP01	RAW	<0.30	18.9	8.87	8.51
University Water System (IA5225101)										
2016-07-11 09:25	2016-07-11 13:42		uiwp raw tap wp lab	Raw	TP01	RAW	<0.30			
2016-07-18 10:35	2016-07-18 13:13		uiwp raw tap wp lap	Raw	TP01	RAW	<0.30			
2016-07-25 15:25	2016-07-26 08:21		uiwp iowa river lab tap	Raw	TP01	RAW	<0.30	29.4	13.5	8.4
2016-08-01 09:00	2016-08-01 13:34		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	28.4	16.3	8.15
2016-08-11 16:00	2016-08-12 13:27	A	uiwp lab sink plt tap	Raw	TP01	RAW	<0.30	28.4	73.4	8.5
2016-08-15 10:55	2016-08-15 13:12		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	27.7	48.1	7.91
2016-08-22 10:00	2016-08-22 14:05		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	26.7	14.9	7.91
2016-08-29 13:10	2016-08-29 13:50		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	26.0	34.8	7.9
2016-09-06 07:55	2016-09-06 14:05		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	25.3	13.6	8.14
2016-09-12 08:30	2016-09-12 13:38		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	25.1	22.1	8.1
2016-09-19 08:30	2016-09-19 14:09		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	23.3	19.6	8.1
2016-09-29 07:30	2016-09-29 13:32		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	20.2	22.1	7.8
2016-10-03 07:35	2016-10-03 13:30		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	19.6	12.2	7.9
2016-10-10 08:05	2016-10-10 13:45	A	uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	18.4	9.5	7.9
2016-10-17 11:20	2016-10-17 16:29		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	17.7	16.8	7.8
2016-10-24 10:40	2016-10-24 13:03		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	16.7	6.7	7.8
2016-10-31 07:20	2016-10-31 13:40		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	14.8	8.6	7.8
2016-11-07 08:00	2016-11-07 13:51		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	15.1	12.7	7.8
2016-11-14 09:05	2016-11-14 14:30		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	12.8	10.8	8.06
2016-11-21 08:00	2016-11-21 13:48		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	9.2	12.4	8.2
2016-11-28 09:00	2016-11-28 13:27		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	7.0	11.3	8.47
2016-12-05 09:15	2016-12-05 12:00		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	5.4	10.7	8.7
2016-12-12 07:15	2016-12-12 13:49		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	2.2	5.7	8.3

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-12-19 08:30	2016-12-19 14:34		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	0.9	4.6	8.3
2016-12-29 09:15	2016-12-29 13:27		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	1.2	5.1	8
2017-01-03 08:15	2017-01-03 13:42		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	1.3	19.1	7.9
2017-01-10 07:00	2017-01-10 08:29		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	1.1	6.1	7.7
2017-01-17 07:00	2017-01-17 07:56		uiwp	Raw	TP01	RAW	<0.30	1.2	120	8
2017-01-23 08:45	2017-01-23 13:30		uiwp labsink raw tap	Raw	TP01	RAW	<0.30	1.2	58.6	7.5
2017-01-30 08:30	2017-01-30 13:50		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	1.2	41	7.6
2017-02-06 07:30	2017-02-06 13:30		uiwp	Raw	TP01	RAW	<0.30			
2017-02-13 07:25	2017-02-13 13:46		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	1.6	9.6	7.8
2017-02-20 07:40	2017-02-20 13:11		uiwp	Raw	TP01	RAW	<0.30	4.1	9.3	7.7
2017-02-27 07:30	2017-02-27 13:20		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	6.1	24.4	7.86
2017-03-06 07:45	2017-03-06 13:00		uiwp lab sink raw	Raw	TP01	RAW	<0.30	5.7	19	8
2017-03-13 10:50	2017-03-13 13:19		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	4.6	19	8.1
2017-03-20 10:10	2017-03-20 13:20		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	6.7	21.4	7.7
2017-03-27 11:45	2017-03-27 13:24		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	8.2	38	8
2017-04-03 09:00	2017-04-03 13:09		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	9.0	21.3	7.8
2017-04-10 09:10	2017-04-10 13:50		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	14.4	42	7.9
2017-04-17 08:45	2017-04-17 13:05		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	16.2	38.8	8.1
2017-04-24 07:10	2017-04-24 13:20		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	16.4	55	7.9
2017-05-01 08:25	2017-05-01 13:15		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	10.6	69	8
2017-05-08 07:45	2017-05-08 13:10		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	16.9	44	7.9
2017-05-16 07:10	2017-05-16 07:50		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	21.0	38	7.9
2017-05-22 11:00	2017-05-22 13:10		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	16.1	41	7.9
2017-05-30 07:55	2017-05-30 13:14		uiwp raw tap	Raw	TP01	RAW	<0.30	19.2	24	7.8
2017-06-05 10:20	2017-06-05 13:22		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	23.9	23	7.9
2017-06-12 10:00	2017-06-12 13:20		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	25.8	17	7.8
2017-06-19 10:45	2017-06-19 13:25		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	28.0	50	7.9
2017-06-26 15:15	2017-06-27 08:56		uiwp lab sink raw tap	Raw	TP01	RAW	<0.30	24.1	27	7.9
Wahpeton Water Supply (IA3087057)										

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-07-11 10:46	2016-07-11 11:02		raw sample tap	Raw	TP01	RAW	<0.30			
2016-07-18 10:38	2016-07-18 10:54		raw sample tap	Raw	TP01	RAW	<0.30	23.0	1.46	8.4
2016-07-25 10:10	2016-07-25 10:32		raw water sample tap	Raw	TP01	RAW	<0.30	24.0	1.25	8.3
2016-08-01 08:30	2016-08-01 08:50		wahpeton-raw sample tap	Raw	TP01	RAW	<0.30	25.0	1.06	8.5
2016-08-08 09:30	2016-08-08 10:44		wahpeton raw sample tap	Raw	TP01	RAW	0.31	25.0	1.01	8.4
2016-08-15 09:21	2016-08-15 10:29	A	sep sample tap	Finished	01	01	<0.30	25.0	0.052	8.2
2016-08-15 09:30	2016-08-15 10:29	A	raw sample tap	Raw	TP01	RAW	<0.30	25.0	1.1	8.3
2016-08-22 13:27	2016-08-23 09:25		raw sample tap	Raw	TP01	RAW	0.42	24.0	1.23	8.4
2016-08-29 10:35	2016-08-29 11:16		plant effluent sample tap	Finished	01	01	<0.30	23.0	0.066	8.4
2016-08-29 10:44	2016-08-29 11:16		raw sample tap	Raw	TP01	RAW	<0.30	23.0	1.16	8.4
2016-09-06 09:55	2016-09-06 10:42		raw sample tap	Raw	TP01	RAW	<0.30	22.0	1.25	8.4
2016-09-12 10:30	2016-09-12 10:55		raw sample tap	Raw	TP01	RAW	<0.30	21.0	1.35	8.3
2016-09-19 11:04	2016-09-19 11:28		raw sample tap	Raw	TP01	RAW	<0.30	20.0	1.26	8.3
2016-09-26 09:15	2016-09-26 09:46		raw sample tap	Raw	TP01	RAW	<0.30	20.0	1.07	8.3
2016-10-03 13:57	2016-10-04 11:25		raw sample tap	Raw	TP01	RAW	<0.30	19.0	1.06	8.4
2016-10-10 10:25	2016-10-10 10:58		raw sample tap	Raw	TP01	RAW	<0.30	17.0	1.15	8.3
2016-10-17 10:04	2016-10-17 10:25		raw sample tap	Raw	TP01	RAW	<0.30	16.0	1.1	8.3
2016-10-24 07:41	2016-10-24 08:40		raw sample tap	Raw	TP01	RAW	<0.30	15.0	1.01	8.2
2016-10-31 10:04	2016-10-31 10:30		raw sample tap	Raw	TP01	RAW	<0.30	14.0	0.885	8.3
2016-11-07 10:01	2016-11-07 10:27		raw sample tap	Raw	TP01	RAW	<0.30	13.0	0.689	8.2
2016-11-14 09:22	2016-11-14 10:39		raw sample tap	Raw	TP01	RAW	<0.30	12.0	0.622	8.3
2016-11-21 10:27	2016-11-21 10:58		raw sample tap	Raw	TP01	RAW	<0.30	10.0	0.719	8.3
2016-11-28 09:38	2016-11-28 10:16		raw sample tap	Raw	TP01	RAW	<0.30	9.0	0.526	8.4
2016-12-05 10:21	2016-12-05 10:36		raw sample tap	Raw	TP01	RAW	<0.30	7.0	0.838	8.5
2016-12-12 10:21	2016-12-12 11:03		raw sample tap	Raw	TP01	RAW	<0.30	5.0	0.481	8.5
2016-12-19 10:31	2016-12-19 11:05		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.384	8.5
2016-12-27 12:30	2016-12-28 09:05		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.334	8.6
2017-01-03 10:04	2017-01-03 10:47		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.311	8.7
2017-01-09 11:49	2017-01-09 12:10		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.401	8.7

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-01-17 10:05	2017-01-17 10:24		raw sample tap	Raw	TP01	RAW	<0.30	4.0	0.506	8.6
2017-01-23 10:41	2017-01-23 11:10		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.402	8.8
2017-01-30 10:17	2017-01-30 10:34		raw water tap	Raw	TP01	RAW	<0.30	3.0	0.425	8.8
2017-02-06 10:30	2017-02-06 11:42		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.427	8.8
2017-02-13 10:35	2017-02-13 10:52		raw sample tap	Raw	TP01	RAW	<0.30	3.0	0.466	8.7
2017-02-20 10:56	2017-02-20 12:44		raw sample tap	Raw	TP01	RAW	<0.30	4.0	0.67	8.9
2017-02-27 11:12	2017-02-27 11:39		raw sample tap	Raw	TP01	RAW	<0.30	4.0	0.837	8.8
2017-03-06 10:45	2017-03-06 11:22		raw sample tap	Raw	TP01	RAW	<0.30	4.0		8.9
2017-03-13 09:44	2017-03-13 10:11		raw sample tap	Raw	TP01	RAW	<0.30	3.0	1.01	8.9
2017-03-20 10:22	2017-03-20 11:17		raw sample tap	Raw	TP01	RAW	<0.30	4.0	0.903	8.5
2017-03-27 11:03	2017-03-27 11:22		raw sample tap	Raw	TP01	RAW	<0.30	4.0	1.27	8.3
2017-04-03 11:22	2017-04-03 12:00		raw sample tap	Raw	TP01	RAW	<0.30	5.0	0.678	8.3
2017-04-10 11:22	2017-04-10 11:41		raw sample tap	Raw	TP01	RAW	<0.30	7.0	0.795	8.3
2017-04-16 16:53	2017-04-17 09:15		raw sample tap	Raw	TP01	RAW	<0.30	8.0	0.611	8.3
2017-04-24 08:09	2017-04-24 09:03		raw sample tap	Raw	TP01	RAW	<0.30	9.0	0.512	8.3
2017-05-01 08:38	2017-05-01 10:03		raw sample tap	Raw	TP01	RAW	<0.30	8.0	0.453	8.2
2017-05-08 11:31	2017-05-09 09:35		raw sample tap	Raw	TP01	RAW	<0.30	11.0	0.37	8.2
2017-05-15 09:30	2017-05-15 11:17	B	raw sample tap	Raw	TP01	RAW	<0.30	11.0	0.386	8.3
2017-05-22 10:58	2017-05-22 11:26		raw sample tap	Raw	TP01	RAW	<0.30	13.0	0.477	8.2
2017-05-30 09:03	2017-05-30 09:36		raw sample tap	Raw	TP01	RAW	<0.30	14.0	0.497	8.1
2017-06-05 08:38	2017-06-05 09:00		raw sample tap	Raw	TP01	RAW	<0.30	15.0	0.408	8.1
2017-06-12 09:44	2017-06-12 10:01		raw sample tap	Raw	TP01	RAW	<0.30	17.0	0.555	8.1
2017-06-19 10:45	2017-06-19 11:01		raw sample tap	Raw	TP01	RAW	<0.30	19.0	0.568	8
2017-06-26 09:51	2017-06-26 10:16	D	raw sample tap	Raw	TP01	RAW	<0.30	20.0	0.662	8.2
Winterset Municipal Waterworks (IA6171029)										
2016-07-11 08:26	2016-07-11 11:41		plant raw tap	Raw	TP02	TP02	<0.30			
2016-07-18 07:40	2016-07-18 12:08		plant raw tap	Raw	TP02	TP02	<0.30	24.0	6.1	7.95
2016-07-25 07:10	2016-07-26 09:20		plant raw tap	Raw	TP02	RAW	<0.30	24.6	7.23	7.79
2016-08-01 07:35	2016-08-01 11:30		plant raw tap	Raw	TP02	RAW	<0.30	24.2	5.53	7.71

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2016-08-08 08:15	2016-08-09 09:15	A	plant raw tap	Raw	TP02	RAW	<0.30	24.1	24.1	7.8
2016-08-15 07:20	2016-08-16 09:15	A	plant raw tap	Raw	TP02	RAW	<0.30	25.0	3.84	7.76
2016-08-22 07:45	2016-08-23 09:25	A	plant raw tap	Raw	TP02	RAW	<0.30	24.0	4.96	7.8
2016-08-29 07:30	2016-08-30 09:18	A	plant raw tap	Raw	TP02	RAW	<0.30	22.5	5.5	7.6
2016-09-06 07:10	2016-09-06 12:23		plant raw tap	Raw	TP02	RAW	<0.30	23.0	4.39	7.7
2016-09-12 07:41	2016-09-12 12:14		plant raw tap	Raw	TP02	RAW	<0.30	22.2	4.39	7.71
2016-09-19 08:40	2016-09-20 09:30		plant raw tap	Raw	TP02	RAW	<0.30	20.0	15.1	7.82
2016-09-26 08:20	2016-09-27 09:23		plant raw tap	Raw	TP02	RAW	<0.30	21.1	7.2	7.5
2016-10-03 07:32	2016-10-04 09:25		plant raw tap	Raw	TP02	RAW	<0.30	18.4	5.5	7.3
2016-10-10 08:25	2016-10-11 09:30		plant raw tap	Raw	TP02	RAW	<0.30	17.9	7.76	7.42
2016-10-17 08:10	2016-10-17 11:05		plant raw tap	Raw	TP02	RAW	<0.30	16.0	3.6	7.6
2016-10-24 08:22	2016-10-25 09:15		plant raw tap	Raw	TP02	RAW	0.32	15.6	4.4	7.6
2016-10-31 08:28	2016-11-01 09:30		plant raw tap	Raw	TP02	RAW	<0.30	14.4	3.8	7.8
2016-10-31 08:31	2016-11-01 09:30		plant fw tap	Finished	01	01	<0.30	15.2	0.082	8
2016-11-07 07:41	2016-11-07 12:44		plant raw tap	Raw	TP02	RAW	<0.30	13.9	2.1	7.9
2016-11-14 08:08	2016-11-14 12:13		raw tap	Raw	TP02	RAW	<0.30	12.3	17.3	7.8
2016-11-21 07:15	2016-11-22 09:00		plant raw tap	Raw	TP02	RAW	<0.30	11.0	11.1	7.8
2016-11-28 07:50	2016-11-29 08:55		plant raw tap	Raw	TP02	RAW	<0.30	9.4	12.76	8.01
2016-12-05 07:35	2016-12-05 13:07		plant raw tap	Raw	TP02	RAW	<0.30	7.1	11.1	8.2
2016-12-12 08:04	2016-12-12 12:35		plant raw tap	Raw	TP02	RAW	<0.30	4.1	11.6	8.09
2016-12-19 07:21	2016-12-20 10:10		plant raw tap	Raw	TP02	RAW	<0.30	4.1	11.63	7.96
2016-12-27 07:50	2016-12-28 09:05		plant raw tap	Raw	TP02	RAW	<0.30	4.0	12.7	8.2
2017-01-03 07:25	2017-01-04 09:40		plant raw tap	Raw	TP02	RAW	<0.30	3.5	14.43	8.13
2017-01-09 07:35	2017-01-09 11:29	C	plant raw tap	Raw	TP02	RAW		3.0	10.34	8.25
2017-01-10 10:20	2017-01-10 11:18		plant raw tap	Raw	TP02	RAW	<0.30	2.5	10.36	8.32
2017-01-17 07:42	2017-01-17 11:32	A	plant raw tap	Raw	TP02	RAW	<0.30	5.0	10.12	8.2
2017-01-23 07:40	2017-01-24 09:15	A	plant raw tap	Raw	TP02	RAW	<0.30	3.0	14.4	7.74
2017-01-30 08:02	2017-01-31 09:30		plant raw tap	Raw	TP02	RAW	<0.30	3.4	19.71	7.83
2017-02-06 07:35	2017-02-06 12:03		plant raw tap	Raw	TP02	RAW	<0.30	4.0	26.4	7.7

Date Sample Collected	Date Sample Received	QA Event*	SDWIS Location	Source Type	Facility Id	Sample Pt Id	Microcystins, µg/L	Field Temp., ºC	Field Turbidity, NTU	Field pH, Std Units
2017-02-13 07:35	2017-02-13 10:32		plant raw tap	Raw	TP02	RAW	<0.30	3.6	9.62	7.65
2017-02-20 08:08	2017-02-21 09:30		winterset plant raw tap	Raw	TP02	RAW	<0.30	5.2	13.31	7.92
2017-02-27 07:55	2017-02-28 09:30	A, C	plant raw tap	Raw	TP02	RAW	<0.30	5.6	19.74	7.9
2017-03-06 07:55	2017-03-06 11:34		plant raw tap	Raw	TP02	RAW	<0.30	6.5	19.61	7.73
2017-03-13 08:10	2017-03-14 09:25		plant raw tap	Raw	TP02	RAW	<0.30	6.9	23.9	7.87
2017-03-20 07:45	2017-03-21 09:10		plant raw tap	Raw	TP02	RAW	<0.30	7.0	19.1	8.1
2017-03-27 08:05	2017-03-28 09:30		plant raw tap	Raw	TP02	RAW	<0.30	7.5	15.94	8.26
2017-04-03 07:50	2017-04-04 09:20		plant tap raw	Raw	TP02	RAW	<0.30	7.8	26.6	7.9
2017-04-10 08:02	2017-04-10 11:36		plant raw tap	Raw	TP02	RAW	<0.30	11.5	19.96	8
2017-04-17 08:05	2017-04-18 09:10		plant raw tap	Raw	TP02	RAW	<0.30	14.2	13.5	8.5
2017-04-24 07:45	2017-04-25 09:30		plant raw tap	Raw	TP02	RAW	<0.30	14.4	11.86	8.31
2017-05-01 07:30	2017-05-02 09:30		plant raw tap	Raw	TP02	RAW	<0.30	11.0	12.3	7.8
2017-05-08 08:00	2017-05-08 11:21		plant raw tap	Raw	TP02	RAW	<0.30	12.9	11.58	8.1
2017-05-15 08:00	2017-05-15 11:01		plant raw tap	Raw	TP02	RAW	<0.30	15.1	23.7	7.6
2017-05-22 07:50	2017-05-23 09:45		plant raw tap	Raw	TP02	RAW	<0.30	14.0	28.69	7.7
2017-05-30 07:50	2017-05-31 09:23		plant raw tap	Raw	TP02	RAW	<0.30	15.5	12.94	7.86
2017-06-05 07:35	2017-06-05 12:47		plant raw tap	Raw	TP02	RAW	<0.30	17.5	6.4	7.6
2017-06-12 07:50	2017-06-12 11:27		plant raw tap	Raw	TP02	RAW	<0.30	22.0	7.53	7.8
2017-06-19 08:52	2017-06-20 09:15		plant raw tap	Raw	TP02	RAW	<0.30	22.5	9.37	7.7
2017-06-26 07:15	2017-06-26 09:07		plant raw tap	Raw	TP02	RAW	<0.30	21.5	11.8	7.7

***QA Event Key from SHL:**

A: Sample exceeded required temperature upon receipt.

B: There was an error in sample collection date/time (e.g. missing, mismatched, postdated or incorrect).

C: Sample container was broken during transit.

D: SHL did not maintain temperature per method requirements.

E: Collection time of sample to receipt in laboratory was outside the acceptable limits.

F: Sample matrix effects were observed in the analysis of this sample.

**pH values shown here are from the plant log and were used instead of the reported values that were erroneous.