


# Cyanotoxin Monitoring Requirements for Public Water Systems in Oregon & 2023 Recap

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## Overview

- Cyanotoxins monitoring rules for public water systems in OR
- 2023 season recap
- Bipartisan Infrastructure Law (BIL) – Emerging Contaminants Funding
- Resources

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## No federal rule for cyanotoxins in drinking water!

- *Non-regulatory* EPA drinking water Health Advisory Levels for two cyanotoxins:
  - Total Microcystins
  - Cylindrospermopsin
- Finished water cyanotoxins monitoring was done as part of UCMR4 (2018-2020)
- Regulations in Ohio, Rhode Island, and Oregon.



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## Cyanotoxins Rulemaking History

- Temporary rules – effective July 1, 2018
- Permanent rules – effective December 27, 2018
- Revised rules – effective February 1, 2023

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## PWSs with “susceptible sources” required to monitor

- 64 PWSs currently meet the rule criteria for conducting routine monitoring (“susceptible source”):
  1. HAB documented in past or cyanotoxin previously detected; or
  2. Intake is downstream of or influenced by another surface water source susceptible to HABs or release of cyanotoxins; or
  3. Source is on a water quality limited listing in the Oregon DEQ Integrated Report and Clean Water Act Section 303(d) list for the limiting factors of algae and aquatic weeds.
  4. OHA determines source is susceptible based on characteristics of the source.

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**Table 1. Public Water Systems susceptible to harmful algae blooms (HABs) and subject to OAR 333-061-0510 to 333-061-0580 for OHA-DWS Cyanotoxin Rules**

version: July 28, 2023, subject to change

**Notes:**

- (1) Includes surface water intake and groundwater under the direct influence of surface water (GWUDI) sources. Systems that purchase water from wholesale providers (\*) can be identified in OHA's Data Online for each individual PWS.
- (2) System Type: C = Community; NTNC = Non-Transient Non-Community; NC = Transient Non-Community; OVS = Oregon Very Small System
- (3) Previous HAB Detection or Advisory based on Recreational HABs from OHA, 2011, updated with data from OHA Recreational HAB Website for 2012-2022; Previous cyanotoxin detections based on 2018 or earlier PWS or watershed data.
- (4) DEQ Water Quality Limited (WQL) listing indicates the waterbody is impaired and needs a Total Maximum Daily Load to calculate amount of pollutant a water body can receive and still meet Oregon water quality standards. Based on Category 4 and 5 listings in most recent OR DEQ Integrated Report and 303(d) list (2022 approved by EPA September 1, 2022). Note that DEQ's Integrated Report methodology for Aquatic Weeds and Algae includes 303(d) water quality limited listings for Harmful Algal Blooms, Aquatic Weeds, Chlorophyll-a or Excess Algal Growth.
- (5) GU - Groundwater under the direct influence of surface water - refers to a groundwater source that is located close enough to nearby surface water (e.g., a river or lake) to receive direct surface water recharge. Since a portion of the groundwater source's recharge is from surface water, the groundwater source is considered at risk of contamination from pathogens and viruses that are not normally found in true groundwaters and the water source is subject to the surface water treatment rule.

PWS ID#	PWS Name <sup>(1)</sup>	Drinking Water Source	County	System Type <sup>(2)</sup>	Population Served	"Susceptible" Water Source (OAR 333-061-0510 (2)) risk criteria/factors identified in the Drinking Water Source Area		
						Previous Documented HAB or Cyanotoxin Detection <sup>(3)</sup> OAR 333-061-0510 (2a and 2c)	DEQ Water Quality Limited (WQL) Listing <sup>(4)</sup> for algae and aquatic weeds OAR 333-061-0510 (2b and 2c)	Other Criteria OAR 333-061-0510 (2d)
<b>Susceptible Water Source per OAR 333-061-0510 (2)</b>								
OR4100012	Albany, City of (*)	Santiam River	Linn	C	54,945	X	X	
OR4101483	Angler's Cove/SCHWC	Rogue River	Jackson	C	80	X	X	
OR4100047	Ashland Water Department	Ashland Creek	Jackson	C	20,700	X		
OR4101174	Buell-Red Prairie Water District	Gooseneck Creek	Polk	C	800	X		
OR4191786	Camp Baker BSA	Infiltration Gallery (Siltcoos Lake)	Lane	NC	75	X	X	
OR4100157	Canby Utility	Common header for Molalla River, IG and Springs Gallery	Clackamas	C	18,754	X		
OR4100689	City of Rainier	Columbia River	Columbia	C	1,975	X		
OR4100187	Clackamas River Water (*)	Clackamas River	Clackamas	C	41,338	X	X	
OR4100548	Clarks Branch Water Association	South Umpqua River	Douglas	C	140	X	X	
OR4100236	Cottage Grove, City of	Row River	Lane	C	10,005	X	X	

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## Monitoring requirements

- Raw water monitoring **every 2 weeks** (May 1 to October 31)
- If recreational HAB advisory upstream, raw water **weekly**
- If raw water microcystins  $\geq 0.20$  ug/L or cylindrospermopsin  $\geq 0.30$  ug/L , raw and finished water **weekly**
- If toxins detected in the finished water, finished water **daily**
- If > Health Advisory Levels (HAL) in finished water:
  - Confirmation sample asap
  - If confirmation > HAL = issue a Do-Not-Drink advisory

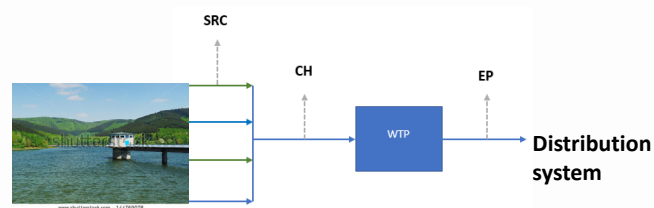
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## Sampling locations

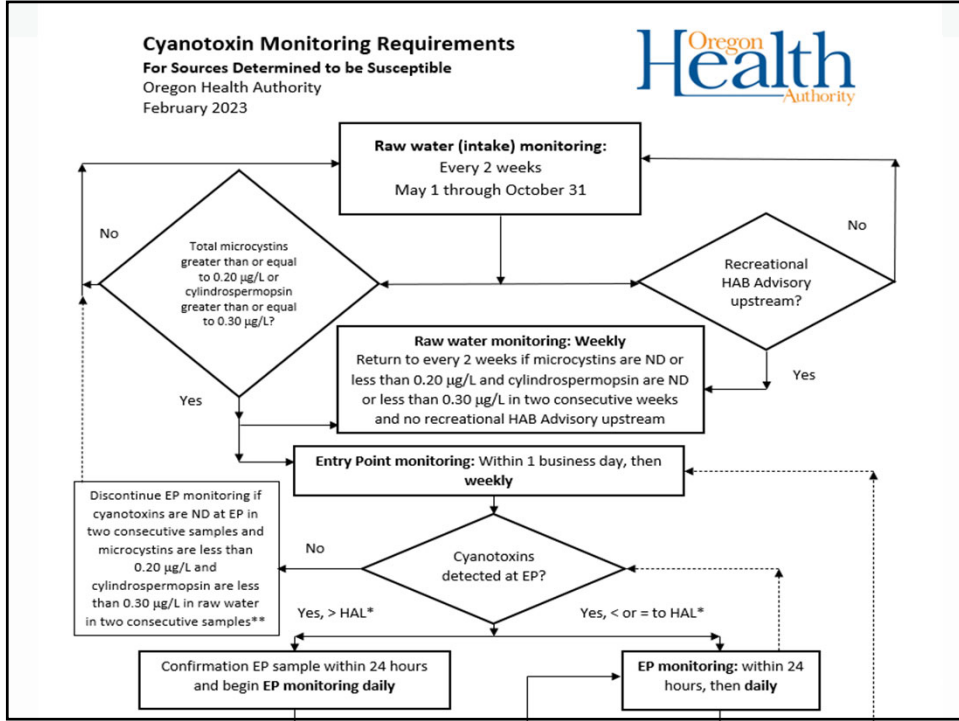


- **SRC** = Source, from intake prior to any treatment ("raw" water)
- **CH** = Common header; after all sources combine, as it enters the treatment plant (also "raw" water)
- **EP** = Entry point to the distribution, representing treated or finished water
- **Distribution system** = sample at representative distribution locations

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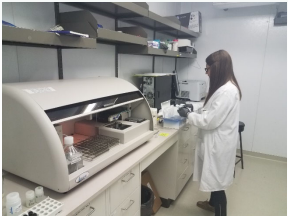


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## Analytical methods



- Must use ORELAP-accredited lab or the DEQ lab
- Total microcystins: EPA method 546 (ELISA).
  - The ONLY approved method that measures total microcystins
  - SAES kit is equivalent to standard kit mentioned in the method
- Cylindrospermopsin: DEQ ELISA method
  - No EPA approved ELISA method
  - If detected at the entry point over the HAL, EPA method 545 (LC-MS/MS) must be used. Best to confirm with an EPA method.

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## Cyanotoxins Drinking Water HALs

- Non-regulatory EPA drinking water health advisory levels (HALs) are **regulatory/enforceable** standards in Oregon (but not nationally)

Cyanotoxin	For Vulnerable People (ug/L or ppb)	For Anyone (ug/L or ppb)
Total Microcystins	0.3	1.6
Cylindrospermopsin	0.7	3

- Only SW PWSs susceptible to cyanotoxins required to monitor
- 10-day health advisory but our rules require public notice if cyanotoxins confirmed in finished water regardless of duration

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## Summary of rule revisions (effective 2/1/23):

- **333-061-540 Cyanotoxin Monitoring:**
  - Lowered total microcystins raw water trigger level to **0.20 ug/L** (from 0.3 ug/L)
  - Changed cylindrospermopsin raw water trigger level to **0.30 ug/L** (from 0.3 ug/L)
- **333-061-0550 Analytical Methods:**
  - Added language indicating Eurofins Abraxis SAES kit is equivalent to standard kit mentioned in EPA Method 546 (SAES kit allows lower minimum reporting level for microcystins)
- **333-061-0560 Reporting:**
  - Requires faster reporting of finished water results taken in response to raw water result over the trigger level
  - Requires samples collected outside the May to October monitoring season that otherwise meet the rules to be reported

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## 2023 Recap

- The 2023 season was very quiet. Normally we see 20–55 raw water microcystins & 0–5 cylindro detects a season.
- In 2023 there were only 6 raw water microcystins detections at 3 water systems (no cylindro detects):
  1. Josephine County Parks Lake Selmac 1 (1 detect)
  2. Josephine County Parks Lake Selmac 2 (4 detects)
  3. Rainier (1 detect)
- Lake Selmac 1 & 2 had raw water cyanotoxin concentrations high enough to require finished water monitoring:
  - *No finished water detections (good!)*

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## 2023 Recap (cont.)

- 4 PWS (St Helens, Rainier, PGE Beaver Generating Station, and Georgia Pacific Wauna) added to susceptible list due to upstream cyanotoxin detections
- Reports of potential HABs in waterbodies on Sauvie Island was supported by satellite imagery and led to DEQ sampling at several locations on the island for cyanotoxins.
- Sampling confirmed presence of cyanotoxins (microcystins, anatoxin-a, and saxitoxin) w/ microcystins exceeding recreational guidelines and OHA issuing a recreational advisory.
- A rec advisory being issued upstream triggered OHA (in consultation with DEQ) to evaluate the susceptibility of any downstream public water systems on the Columbia River and it was determined they are susceptible.

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## 2023 Recap (cont.)

- 4 downstream PWS began monitoring in August 2023:
  - 1 raw water microcystins detect a few weeks later at Rainier (8/15/23 - 0.13 ug/L).
- Anatoxin-a & saxitoxin not regulated under OHA rules, but since detected in the Sauvie Island sampling, OHA requested monitoring for these two additional cyanotoxins in raw water of the 4 downstream PWS for a time (no detections).
- This collaboration between agencies on quickly identifying, verifying, and confirming a new HAB and then evaluating risk to downstream PWSs proved successful and I hope to continue that collaboration going forward.

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## Cyanotoxins sample results

<https://yourwater.oregon.gov/cyanocounty.php>

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Drinking Water Data Online

Introduction | Data Search Options | Water System Search | DWS Home | DWS Rules

### Cyanotoxin Sample Results

More Information

Sample Dates: From 01/01/2023 to 02/16/2024

Sample Results: Filter both analytes for all:

Reset Columns Download

Showing 1 to 25 of 836 records (filtered from 5,384 total records)

Regulating Agency	County Served	PWS ID	PWS Name	Sample Date	Received Date	Facility ID	Facility Name	Total Microcystins (ug/L)	Cylindrospermopsin (ug/L)
REGION 2	Linn	00012	ALBANY, CITY OF	11/2/2023	11/8/2023	SRC-BA	SANTIAM RIVER	ND	ND
REGION 1	Polk	01174	BUELL-RED PRAIRIE WD	11/2/2023	11/6/2023	SRC-AA	GOOSENECK CREEK	ND	ND
REGION 1	Clackamas	00580	NORTH CLACKAMAS COUNTY WC	11/2/2023	11/8/2023	SRC-BA	CLACKAMAS RIVER	ND	ND
REGION 2	Douglas	00326	GLIDE WATER ASSOCIATION	11/1/2023	11/6/2023	SRC-AA	NORTH UMPQUA RIVER	ND	ND
REGION 2	Jackson	01483	ANGLERS COVE/SCHWC	10/30/2023	11/3/2023	SRC-AB	ROGUE RIVER	ND	ND
REGION 2	Lane	01786	CAMP BAKER BSA	10/30/2023	11/6/2023	SRC-AA	INFILTRATION GALLERY	ND	ND
REGION 1	Clackamas	00157	CANBY UTILITY	10/30/2023	11/6/2023	CH-A	COMMON HEADER FOR WTP-A	ND	ND
REGION 1	Columbia	00669	CITY OF RAINIER	10/30/2023	11/3/2023	SRC-AB	COLUMBIA RIVER	ND	ND
REGION 1	Clackamas	00187	CLACKAMAS RIVER WATER	10/30/2023	11/6/2023	SRC-AA	CLACKAMAS RIVER	ND	ND
REGION 2	Douglas	00548	CLARKS BRANCH WATER ASSOC	10/30/2023	11/3/2023	SRC-AA	SOUTH UMPQUA RIVER	ND	ND
REGION 2	Lane	00236	COTTAGE GROVE, CITY OF	10/30/2023	11/3/2023	SRC-BA	ROW RIVER	ND	ND
REGION 2	Lane	00287	EUGENE WATER & ELECTRIC BOARD	10/30/2023	11/3/2023	SRC-AA	MCKENZIE RIVER	ND	ND
REGION 1	Marion	00317	GATES, CITY OF	10/30/2023	11/3/2023	SRC-AA	NORTH SANTIAM RIVER	ND	ND
REGION 1	Clatsop	00416	GEORGIA-PACIFIC, WALUNA MILL	10/30/2023	11/3/2023	SRC-AA	COLUMBIA RIVER	ND	ND
REGION 2	Josephine	00342	GRANTS PASS, CITY OF	10/30/2023	11/3/2023	SRC-AA	ROGUE RIVER	ND	ND

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## Bipartisan Infrastructure Law (BIL) – Emerging Contaminants Funding

- BIL provides **100% forgivable loans/grants** for reducing exposure to PFAS or other emerging contaminants (ECs) in drinking water
  - *Cyanotoxins-related projects are eligible for funding!!!*
- For a project or activity to be eligible the primary purpose must be to address ECs in drinking water.
- Can be used by water systems with EC detections to pay for planning/design/construction:
  - Provide treatment, develop a new source, or connect to another PWS
- All 19 PWS with cyanotoxin detections in OR have been notified of the funding (7 responded as interested)
- [www.healthoregon.org/srf](http://www.healthoregon.org/srf) for more information

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## [www.healthoregon.org/dwcyanotoxins](http://www.healthoregon.org/dwcyanotoxins)

### Cyanotoxin Resources for Drinking Water

Drinking Water Services

Water System Operations

Surface Water Treatment

Capacity Development

Public Notice Templates and Resources

Fact Sheets & Best Management Practices

Water System Surveys & Outstanding Performance

Circuit Rider Program

ePipeline Newsletter

Emerging Contaminants in Drinking Water

Per- and Polyfluoroalkyl Substances (PFAS)

Contact Us

#### Rules for Cyanotoxin Monitoring in Drinking Water

Oregon Health Authority (OHA) has developed regulations that require drinking water systems using surface water sources susceptible to harmful algae blooms to routinely test for two cyanotoxins that these blooms produce and notify the public about the test results.

The rules apply to the two cyanotoxins with a health advisory level established by EPA. These are for total microcystins and cylindrospermopsin, at the levels shown in the table below.

Cyanotoxin	For Vulnerable People (ug/L or ppb)	For Anyone (ug/l or ppb)
Total Microcystins	0.3	1.6
Cylindrospermopsin	0.7	3

These rules are effective starting December 27, 2018 and replace temporary administrative rules adopted for cyanotoxin monitoring and testing that were effective July 1, 2018 through December 27, 2018.

OHA is encouraging water systems not subject to the cyanotoxin monitoring rules that serve surface water and have had algae issues in the past to voluntarily test for cyanotoxins and notify the public about the results. If analysis is performed for anatoxin-a or saxitoxins and found in the raw or finished water, please contact OHA-Drinking Water Services for guidance and recommendations.



#### Rules Resources

- [Rules for Cyanotoxin Monitoring for Public Water Systems - Revised rules effective February 1, 2023](#)
- [List of Susceptible Sources Required to Monitor for Cyanotoxins - Updated July 28, 2023, subject to change](#)
- [Cyanotoxin Monitoring Flowchart - Updated February 2023](#)
- [Cyanotoxin Rules Fact Sheet - Updated February 2023](#)
- [Cyanotoxin Sampling DEQ & OHA Presentation from 4/12/2023 \( !\[\]\(196c08192bc1688b986c9d181e52f15b\_img.jpg\) webinar recording\)](#)
- [Cyanotoxin Health Advisory for Vulnerable People Frequently Asked Questions](#)
- [Cyanotoxin Health Advisory for All Consumers Frequently Asked Questions](#)
- [Guidance for Health Care Providers and Facilities Frequently Asked Questions](#)

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# Questions?



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