



2024 training webinar

Drinking Water Cyanotoxin Monitoring (OAR 333-061-0510 to 333-061-0580)

April 24, 2024

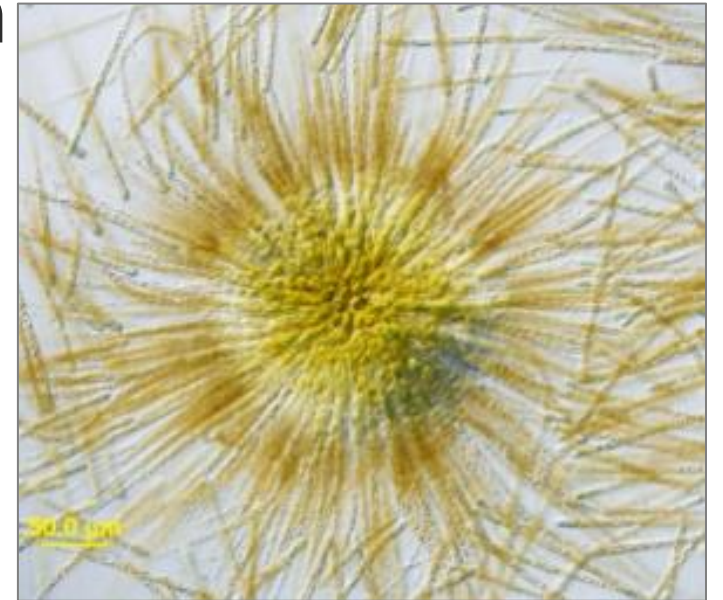
Housekeeping

- Please let us know if you cannot hear, etc.
- Mute your phone/computer
- Ask questions in chat box
- This presentation is being recorded



Training Outline

- Cyanotoxins monitoring rule requirements - Gregg
- 2023 monitoring season recap – Nathan
- Updates to 2024 monitoring – Nathan
- Abbreviated guide to sampling - Nathan
 - Field collection
 - Shipping samples to DEQ
 - Lab analysis and reporting



Questions and Discussion - all

Who to contact

Oregon Health Authority roles:

- Regulatory agency for drinking water regulations
- OAR 333-061-0510 to 580 Cyanotoxin monitoring rules for public water systems

OHA is your go-to for questions about:

- **Cyanotoxin monitoring rules**
- **Sampling schedule changes**
- **Guidance (Optimizing treatment to remove cyanobacteria/cyanotoxins)**

DEQ Laboratory roles:

- Provide lab support for OHA drinking water rule
- Coordinate with DW facility operators
- Provide training, supplies, shipping, lab analyses and report results to OHA

DEQ is your go-to for questions about:

- **Logistical issues (shipping, training, etc.)**
- **Sampling protocol**
- **Interpreting results**

Who to contact

OHA

Gregg Baird

503-936-1657 (cell)

gregg.c.baird@oha.oregon.gov



DEQ Lab

Nathan Reetz

503-706-9572 (cell) | 503-693-5756 (office)

Nathan.REETZ@deq.oregon.gov

Who is required to monitor?

- PWSs with “susceptible sources” required to monitor
- 64 PWSs currently meet the rule criteria for conducting routine monitoring (“susceptible source”):
 1. Documented HAB in past or previously detected cyanotoxin; 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.

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 Intergrated 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 ⁽¹⁾	Drinking Water Source	County	System Type ⁽²⁾	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 ⁽³⁾ OAR 333-061-0510 (2a and 2c)	DEQ Water Quality Limited (WQL) listing ⁽⁴⁾ for algae and aquatic weeds OAR 333-061-0510 (2b and 2c)	Other Criteria OAR 333-061-0510 (2d)
Susceptible Water Source per OAR 333-061-0510 (2)								
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	

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 ≥ 0.20 ug/L or cylindrospermopsin ≥ 0.30 ug/L , raw and finished water **weekly**
- If toxins detected in finished water, finished water **daily**
- If toxins detected in finished water > Health Advisory Levels (HAL):
 - Confirmation sample asap
 - If confirmed > HAL = issue a Do-Not-Drink advisory

Health Advisory Levels

- Cyanotoxins monitored in Oregon: microcystins, cylindrospermopsin

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

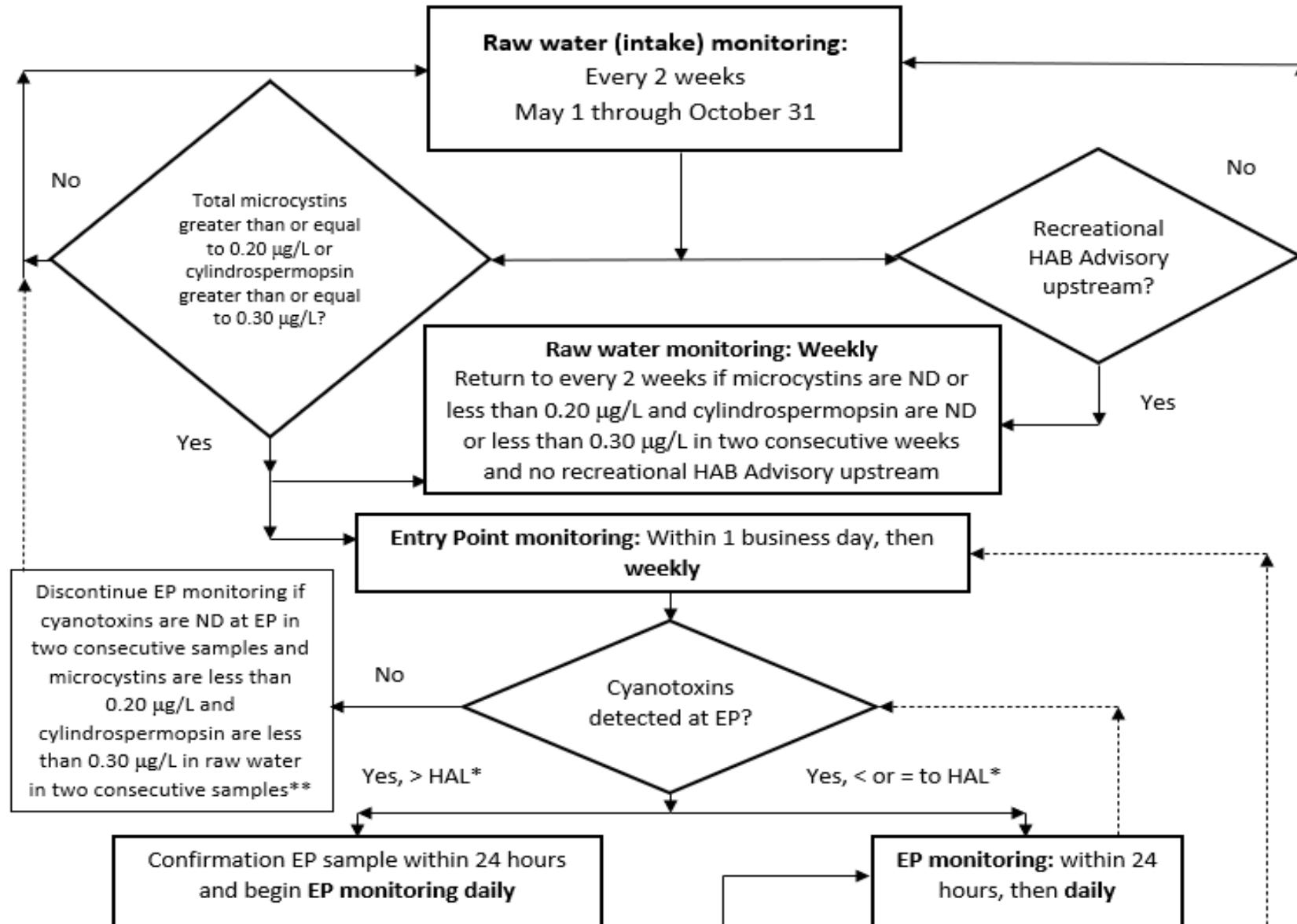
Health effects include: upset stomach, diarrhea, vomiting,
long-term liver/kidney damage

Cyanotoxin Monitoring Requirements

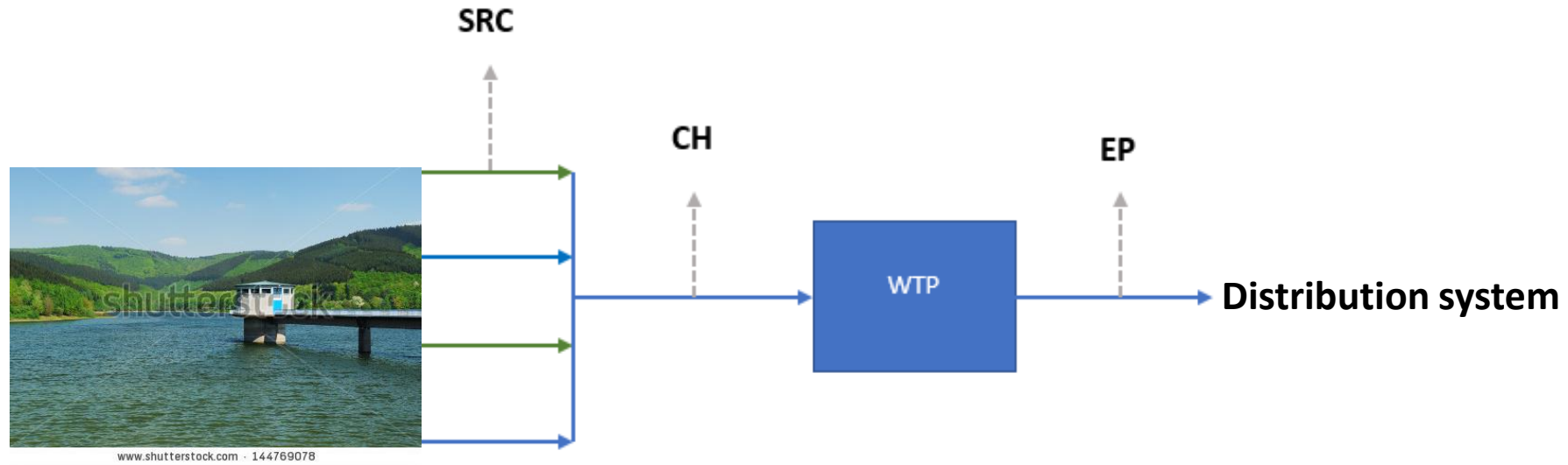
For Sources Determined to be Susceptible

Oregon Health Authority

February 2023



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

Public Notification

- Must issue advisory (public notice) if confirmed $>$ HAL in finished water
 - Includes PWS and any purchasers
 - Press release
- To lift advisory:
 - 2 daily samples at EP $<$ or $=$ HAL, **and**
 - Distribution samples $<$ or $=$ HAL for 2 days
- Must publish finished water detections (EP & DIST) in annual CCR

Purchasing water systems

- **No routine sampling required for purchasers**
 - Purchasers only monitor if under an advisory (in order to lift the advisory)
- Seller must notify purchasers within **24 hours** of initial finished water sample over HAL (“heads up”)
- Seller must notify purchasers within **8 hours** if confirmation is over HAL (joint advisory issued)

Cyanotoxins sample results

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

Cyanotoxin Sample Results

More Information ▾

Sample Dates

From

to

Or select year:

Sample Results

Filter both analytes for all:

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)
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value="Search PWS Name"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
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	91786	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	00689	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	90416	GEORGIA-PACIFIC, WAUNA 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

Emerging Contaminants Funding

- **100% forgivable loans/grants** available 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 directly notified of the funding (7 PWS currently on our project list)*
- www.healthoregon.org/srf for more information

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.

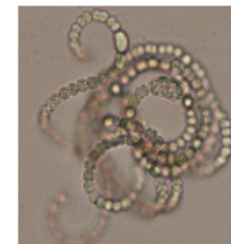
Cyanotoxin	For Vulnerable People (ug/L or ppb)	For Anyone (ug/l or ppb)
Total Microcystins	0.3	1.6
Cylindrospermopsin	0.7	3

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 - March 8, 2022, subject to change](#)
- [Cyanotoxin Monitoring Flowchart - Updated February 2023](#)
- [Cyanotoxin Rules Fact Sheet - Updated February 2023](#)
- [Cyanotoxin Sampling DEQ & OHA Presentation from 4/20/22 \(!\[\]\(e471317fce57ec9bcafb3cdbe6561bfe_img.jpg\) webinar recording from 4/20/22\)](#)
- [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](#)



What you can do now

- Understand monitoring requirements, including if detections are found (change in sample frequency/locations)
- Understand/identify proper sample locations (raw/finished)
- Determine potential distribution sampling sites
- Evaluate best treatment optimization steps for your TP
- Update contact lists (internal, purchasers, state)
- Know where to get public notice templates and resources (our website)

For 2024:

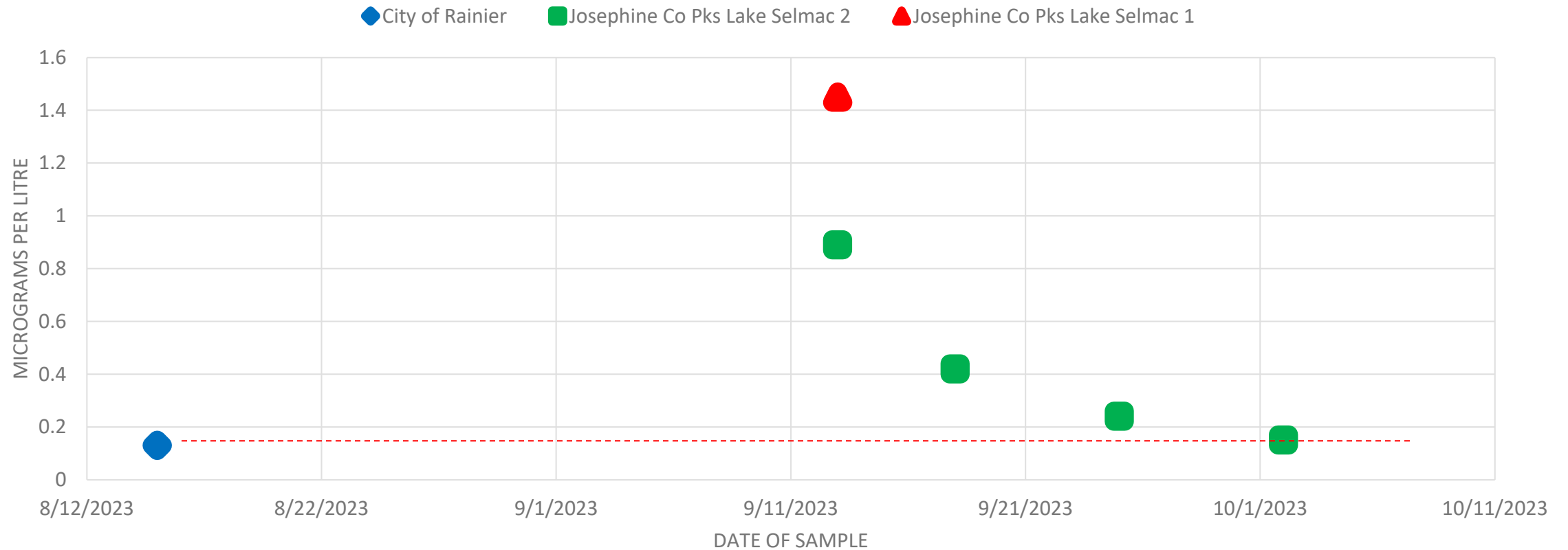
- The state is still paying for shipping & analysis of the samples. I will let you know if that ever changes.
- DEQ will be monitoring some waterbodies for additional cyanotoxins (anatoxin-a & saxitoxin). If anatoxin-a & saxitoxin detects upstream of you, we may ask you to sample raw water for these additional cyanotoxins.
- I'll be communicating directly with you about monitoring schedule changes or anatoxin-a & saxitoxin testing

Summary of 2023 monitoring results

- 2023: 6th year of monitoring since rules adopted
- Added 4 facilities based on recreational advisory
- 58 facilities had no detectable cyanotoxins in their source water
- 3 facilities had 6 microcystins detections
- 2 facilities had 4 microcystins detections >0.2 ug/L, all
 - Josephine Co Park- Lake Selmac (Rogue): 1 at Selmac 1, 3 at Selmac 2
- *No finished water detections since the rules were implemented in 2018*

2023 – Drinking Water Monitoring

2023 SOURCE WATER MICROCYSTIN DETECTIONS



2024 sampling schedule and collection instructions

Week #	Group A	Group B	Notes
1	5/6/2024		
2		5/13/2024	
3	5/20/2024		
4		5/28/2024	Memorial Day; Sample Tuesday, 05/28/2024
5	6/3/2024		
6		6/10/2024	
7	6/17/2024		Juneteenth falls on Wednesday; shouldn't affect schedule
8		6/24/2024	
9	7/1/2024		The 4 th falls on Thursday; shouldn't affect schedule
10		7/8/2024	
11	7/15/2024		
12		7/22/2024	
13	7/29/2024		
14		8/5/2024	
15	8/12/2024		
16		8/19/2024	
17	8/26/2024		
18		9/3/2024	Labor Day; Sample Tuesday 09/03/2024
19	9/9/2024		
20		9/16/2024	
21	9/23/2024		
22		9/30/2024	
23	10/7/2024		
24		10/14/2024	
25	10/21/2024		
26		10/28/2024	

Sampling protocol - cyanotoxins

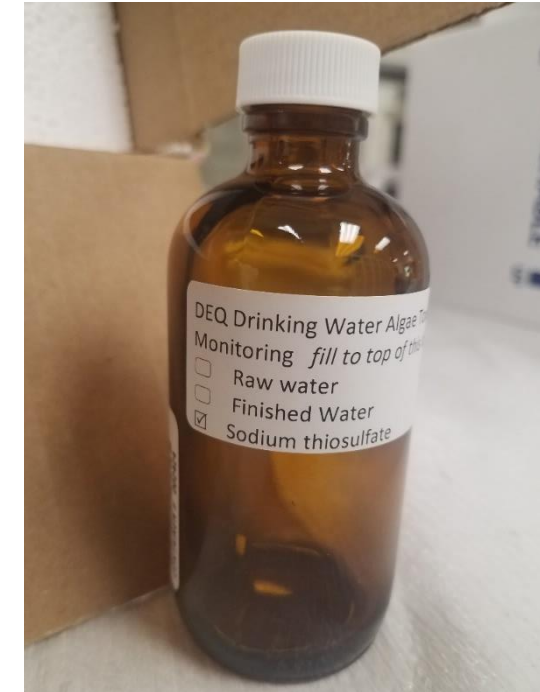
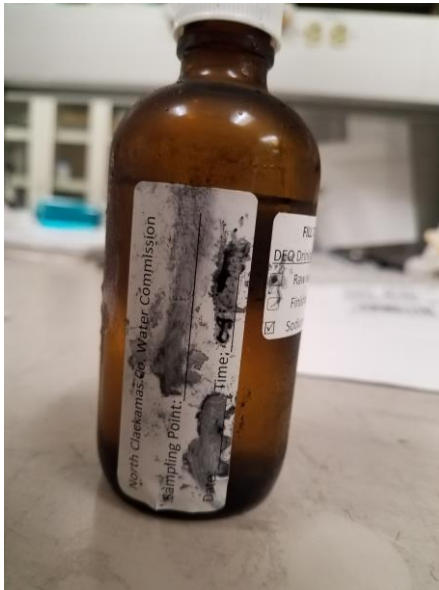
Unpack box and inspect kits. Each box will contain the following:

- 8 coolers in cardboard boxes
- 32 ice packs (4/cooler) – **freeze these before collecting samples!**
- 8 Amber Glass 125mL bottles
- 8 bubble bags (1/glass bottle)
- 8 lab paperwork packets (1/cooler)
- 8 prepaid UPS return labels

Labeling bottles

Check appropriate water type

- “Raw water” = SRC or CH
- “Finished water” = EP
 - You will only collect EP sample if requested by DEQ



OR4101174

Buell-Red Prairie Water Association

Sampling Point: PWS01174:SRC-AA

Date: 5/3/2021 Time: 1105

“Sampling Point”
should exactly match
ID on COC

Additional samples – by request only

- Weekly raw water (source or common header) samples
- Weekly finished water (entry point) samples

Oregon Department of Environmental Quality Chain of Custody Record

Facility: Salem Public Works - OR4100731
 Address: 1410 20TH ST SE BLDG 2
 Salem OR 97302
 Facility Contact: Dwayne Barnes Facility Phone: (503) 588-6483

Office use Only
 Affix Work Order Barcode Here

Qtime: _____ Survey: _____

Sample Collector (s): _____
 Sampling Agency: _____ DEQ Contact: Alison Minerovic

Sample Information						
Item	Sampling Point ID	Water Facility State Code	Source or Finished water (Circle one)	Sample Collection Date and time	Collection Address (if in Distribution)	Comments
	PWS00731:SRC-AA	Not Applicable	Source Water		North Santiam River I.G.	
			S F			
			S F			
			S F			

Relinquished By:	Agency/Company	Date/Time	Received By:	Agency/Company	Date/Time

Sample Receipt Checklist *Office Use Only*

Yes No Sampled Same Day? Temperature Check (IR/Sample): _____ C

Yes No Cooler Contained Ice? Yes No Sample preservation checked at time of sample receipt?

Yes No Samples collected in the appropriate containers? Yes No If yes were all samples properly preserved?

Yes No Sample containers clearly and properly labeled? Yes No COC form properly signed?

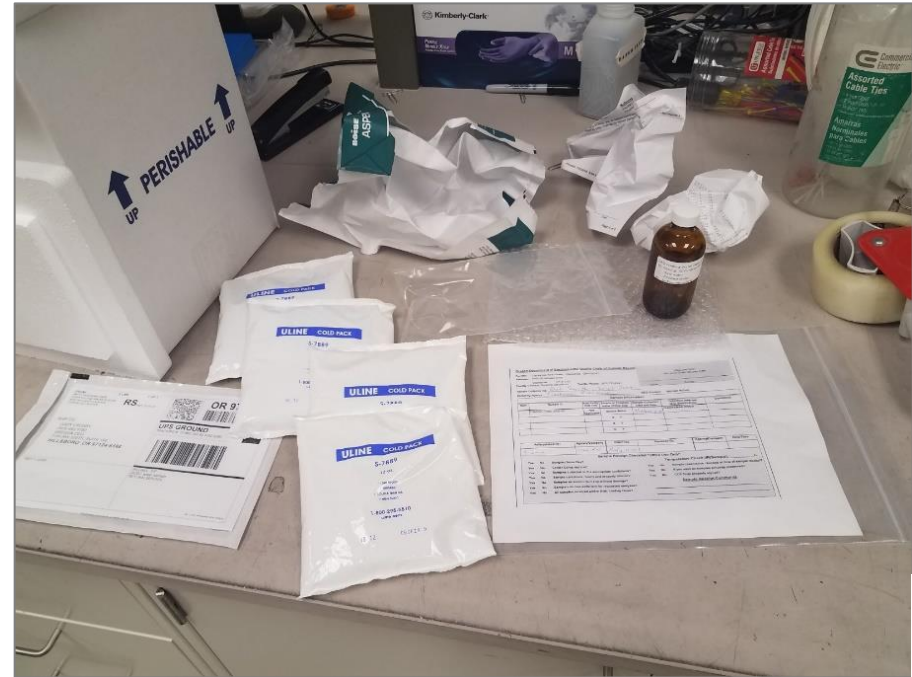
Yes No Samples received intact and without damage? Sample Receipt Comments

Yes No Sample volumes sufficient for requested analyses? _____

Yes No All samples received within their holding times? _____

Packing and shipping to DEQ Lab

- Pack 4 frozen ice packs/cooler
- Double-check bottle labels. Are they both complete, labeled correctly?
- Double-check COC form(s). Are they circled, signed, dated?
- Wrap glass bottles in bubble packs
- Place lab COC(s) in Ziploc bag
- Fill empty space with packing material



Notes about shipping

- Labels are prepaid; each may only be used once (do not photocopy)
- No sample receiving on Saturdays, Sundays, holidays
- Double-check shipping drop-off times
 - Next-day delivery to Hillsboro

Invalid samples

- Too warm ($>10^{\circ}$ C)
 - Freeze ice packs early
- Too old (>48 hours after collection)
 - Sample after 11am is extend hold time. Freeze or refrigerate samples if possible.
- Broken/leaking bottle
 - Check for broken bottles upon receipt
 - Pack in bubble packs carefully
 - Make sure lid is tightened

Invalid samples cannot be analyzed. You will need to resample

Reporting results

- Data management software automatically emails results
- Gregg will call facility contacts if extra sampling required (>trigger)
 - Thursday or Friday
- Nathan will notify OHA of results >trigger
 - Thursday or Friday
- All results will be uploaded to OHA data repository weekly
 - Friday afternoon

Lab methods

- Samples must be analyzed by an accredited lab
 - DEQ lab is accredited
 - Please contact Nathan if not using DEQ lab
- Analyze using following methods:

Toxin	Screening method	Confirmation
Total Microcystins	EPA method 546 (ELISA)	n/a
Cylindrospermopsin	OR DEQ 18-LAB-0050 (ELISA)	EPA method 545 (LC MS/MS)

Additional lab analyses

- DEQ Lab can analyze additional samples for a fee
 - Expired IGAs renewed until 2024 (contact Nathan if you are unsure)
 - Cost depends on sample load. OHA samples are priority

Contact Nathan if you are interested in additional sampling

Questions?

OHA

Gregg Baird

503-936-1657 (cell)

New email: gregg.c.baird@oha.oregon.gov



DEQ Lab

DEQ Lab

Nathan Reetz

503-706-9572 (cell) | 503-693-5756 (office)

Nathan.REETZ@deq.oregon.gov