

OREGON ADMINISTRATIVE RULES
OREGON HEALTH AUTHORITY, PUBLIC HEALTH DIVISION
CHAPTER 333

DIVISION 61

DRINKING WATER

333-061-0510

Applicability of Cyanotoxin Rules

- (1) Water suppliers are subject to OAR 333-061-0510 to 333-061-0580 when they own or operate water systems that:
 - (a) Are supplied by a surface water source that is determined by the Authority to be susceptible or potentially susceptible to harmful algal blooms or release of cyanotoxins; or
 - (b) Are supplied by a groundwater source determined by the Authority to be under the direct influence of a surface water source that is susceptible or potentially susceptible to harmful algal blooms or release of cyanotoxins; or
 - (c) Purchase water from another water system that is supplied by a surface water source or a groundwater source determined by the Authority under the direct influence of a surface water that is susceptible or potentially susceptible to harmful algal blooms or release of cyanotoxins.
- (2) A water source is susceptible to harmful algal blooms or release of cyanotoxins if:
 - (a) One or more harmful algal blooms have been documented or at least one cyanotoxin was previously detected in the water source or other location in a public water system supplied by that water source;
 - (b) The source or a waterbody upstream of the source is listed in the Oregon DEQ Integrated Report and Clean Water Act Section 303(d) list for not meeting water quality standards for algae and aquatic weeds.
 - (c) The point of diversion into the water system is downstream of or influenced by another surface water source susceptible to harmful algal blooms or release of cyanotoxins; or
 - (d) The Authority determines the source is susceptible based on the characteristics of the source, including, but not limited to, slow moving or stagnant water, temperature, available sources of nutrients,

water quality data, satellite imagery, presence of cyanotoxin-producing genes, or other relevant information.

- (3) A water source is potentially susceptible to algal blooms or release of cyanotoxins if:
 - (a) The source or a waterbody upstream of the source is listed in the Oregon DEQ Integrated Report and Clean Water Act Section 303(d) list for not meeting water quality standards for chlorophyll-a, nitrates, phosphorus, ammonia, turbidity, sediment, pH, or dissolved oxygen (May through October listings for cool and cold water);
 - (b) The point of diversion into the water system is downstream of or influenced by another surface water source potentially susceptible to harmful algal blooms or release of cyanotoxins; or
 - (c) The Authority determines the source is potentially susceptible to harmful algal blooms and cyanotoxins based on the characteristics of the source, including, but not limited to, slow moving or stagnant water, temperature, or available sources of nutrients, water quality data, satellite imagery, or other relevant information.
- (4) If a water supplier submits data for a susceptible water source over a three-year period that demonstrate cyanotoxins and cyanotoxin-producing genes have not been detected in raw water and no recreational use health advisories have been issued, the Authority may allow the water supplier to monitor the water source as a potentially susceptible source per OAR 333-061-0540(2).
- (5) The Authority may, in its discretion, exempt a water supplier that would otherwise be subject to OAR 333-061-0510 to 333-061-0580 if the Authority determines that the water source is not likely to be susceptible to cyanotoxins based on information available to the Authority or based on evidence submitted by the water supplier that includes but is not limited to, water quality data, watershed characteristics, and environmental conditions.

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150

333-061-0520

Definitions

In addition to the definitions in OAR 333-061-0020, the following definitions apply to OAR 333-061-0510 to 333-061-0580:

- (1) "Confirmation sample" means a water sample taken after exceeding a health advisory level at the entry point on a different day but the same location.
- (2) "Cyanobacteria" are photosynthetic bacteria that share some properties with algae and are found naturally in freshwater and saltwater. Some species of cyanobacteria can produce toxins, which are known to be harmful to human health above certain concentrations.
- (3) "Cyanotoxin-producing genes" means cyanobacteria genes that are necessary to produce microcystins and cylindrospermopsin, specifically including mcy gene cluster and cyaA.
- (4) "Cyanotoxins" means total microcystins and cylindrospermopsin produced by cyanobacteria.
- (5) "Detected" or "detection" means an analytical result that is equal to or greater than the reporting limit for the analytical method being used.
- (6) "Distribution sampling points" means representative points in the distribution system.
- (7) "Entry point" means a location where water is introduced into the distribution system of a public water system and intended for distribution and consumption without further treatment, except as necessary to maintain water quality in the distribution system, such as for example, booster chlorination. This location is a regulatory point where water is known to be fully treated and does not refer to the point at which water is delivered to a purchasing water system.
- (8) "Harmful algal bloom" means a dense colony of cyanobacteria that can rapidly multiply in surface waters when environmental conditions are favorable for growth.
- (9) "Health advisory level" is the concentration of a cyanotoxin determined by the US Environmental Protection Agency, as specified in OAR 333-061-0530(1), at or below which adverse health effects are not expected to occur if consuming water containing cyanotoxins at this concentration for up to 10 days.
- (10) "Monitoring" means collecting a sample, having it analyzed by an accredited lab, and ensuring results are reported to the Authority.
- (11) "Raw water sampling point" means a sampling point on a water source intake in use prior to any treatment, or another raw water sampling point acceptable to the Authority.

- (12) "Recreational use health advisory" means a health advisory issued by the Authority for a water body when cyanotoxins are determined to be above any recreational use value for total microcystins, cylindrospermopsin, saxitoxin, or anatoxin-a.
- (13) "Vulnerable people" means infants, children under the age of six, pregnant women, nursing mothers, those with pre-existing liver conditions, and those receiving dialysis treatment.

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150

333-061-0530

Health Advisory Levels

- (1) For the purposes of OAR 333-061-0510 to 333-061-0580 the health advisory levels are as follows:
 - (a) Total Microcystins: 0.3 ug/L for vulnerable people; 1.6 ug/L for all persons.
 - (b) Cylindrospermopsin: 0.7 ug/L for vulnerable people; 3 ug/L for all persons.
- (2) Exceeding a health advisory level in a sample collected from an entry point requires additional monitoring and may require public notification as prescribed by OAR 333-061-0540(3) and OAR 333-061-0570.

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150

333-061-0540

Cyanotoxin Monitoring

- (1) A water supplier subject to OAR 333-061-0510 to 333-061-0580 under this rule must begin monitoring as described in this rule beginning May 6, 2019.
- (2) Water suppliers with raw water intakes into susceptible sources must monitor as follows:
 - (a) At raw water sampling points:
 - (A) From May 1 through October 31:
 - (i) Water suppliers must monitor at the raw water sampling point at least once every two weeks for cyanotoxins. Samples from upstream locations collected for recreational or other purposes may be substituted for raw water sampling if approved by the Authority based on proximity and characteristics of sampling locations, sampling techniques and analytical methods used, and intake construction.

- (ii) Water suppliers serving greater than 10,000 people must monitor for cyanotoxin-producing genes at least every two weeks, collected in the alternate week as the cyanotoxins sample required in subparagraph (2)(a)(A)(i) of this rule. Samples from upstream locations collected for recreational or other purposes may be substituted for raw water sampling if approved by the Authority based on proximity and characteristics of sampling locations, sampling techniques and analytical methods used, and intake construction. If any cyanotoxin-producing gene count is greater than 2500 gene counts per milliliter, a sample for cyanotoxins must be collected within 48 hours, or two business days, of receiving the cyanotoxin-producing gene sample results.
- (B) From November 1 through April 30, water suppliers must monitor for cyanotoxin-producing genes once per month. Samples from upstream locations collected for recreational or other purposes may be substituted for raw water sampling upon approval by the Authority based on proximity and characteristics of sampling locations, sampling techniques and analytical methods used, and intake construction. A water supplier may monitor for cyanotoxins once per month instead of cyanotoxin-producing genes upon approval by the Authority.
 - (i) If cyanotoxin-producing genes are detected, cyanotoxins must be monitored every two weeks.
 - (ii) If cyanotoxin-producing genes are greater than 2500 gene counts per milliliter, a sample for cyanotoxins must be collected within 48 hours, or two business days of receiving the sample results.
- (C) If either total microcystins or cylindrospermopsin concentration in raw water are greater than or equal to 0.3 ug/L, or there is a recreational use health advisory in a water body upstream, water suppliers must immediately increase raw water monitoring of cyanotoxins to weekly.
- (D) Water suppliers may resume raw water monitoring every two weeks if there is not a recreational use health advisory upstream and cyanotoxin levels are less than 0.3 ug/L in at least two consecutive weekly samples.
- (E) November 1 through April 30, water suppliers may cease cyanotoxin monitoring if all results from two consecutive bi-

weekly samples collected per paragraph (2)(a)(D) of this rule are less than 0.3 ug/L.

- (b) At entry points:
 - (A) If any cyanotoxin-producing gene count is greater than 2500 gene counts per milliliter at the raw water sampling point, water suppliers must monitor at the entry point weekly, beginning within 48 hours, or two business days, of receiving raw water results.
 - (B) If a cyanotoxin concentration is greater than or equal to 0.3 ug/L at the raw water sampling point, water suppliers must monitor for cyanotoxins at the entry point weekly, beginning within 24 hours of receiving raw water results.
 - (C) If cyanotoxins are detected at any entry point sample, water suppliers must immediately take steps to optimize existing facilities or treatment processes to reduce cyanotoxins and begin monitoring at the entry point daily beginning within 24 hours of notification of results.
 - (D) Water suppliers may resume weekly entry point monitoring if cyanotoxins are not detected in two consecutive daily samples collected at the entry point.
 - (E) Water suppliers may cease entry point monitoring if the results from two consecutive samples of the raw water are less than 0.3 ug/L and is not detected in two consecutive entry point or distribution samples.
- (3) Water suppliers with raw water intakes into potentially susceptible sources must monitor as follows:
 - (a) At raw water sampling points:
 - (A) Water suppliers must monitor for cyanotoxin-producing genes once per month. Samples from upstream locations collected for recreational or other purposes, may be substituted for raw water sampling upon approval by the Authority.
 - (i) If cyanotoxin-producing genes are detected, cyanotoxins must be monitored every two weeks.
 - (ii) If any cyanotoxin-producing gene count is greater than 2500 gene counts per milliliter, a sample for cyanotoxins must be collected within 48 hours, or two business days, of receiving the sample results.
 - (B) If any cyanotoxin concentration in raw water is greater than or equal to 0.3 ug/L, or there is a recreational use health advisory

in a water body upstream, water suppliers must immediately increase monitoring to weekly.

- (C) Water suppliers may reduce cyanotoxin monitoring to once every two weeks if there is not a recreational use health advisory upstream and any cyanotoxin concentration is less than 0.3 ug/L in at least two consecutive weekly samples.
 - (D) Water suppliers may cease cyanotoxin monitoring if two consecutive bi-weekly samples collected per paragraph (3)(a)(C) of this rule are less than 0.3 ug/L. Sampling must continue as prescribed in paragraph (3)(a)(A).
- (b) At entry points. Water suppliers must monitor as prescribed in paragraphs (2)(b)(A) through (E).
- (4) Monitoring following a cyanotoxin health advisory level exceedance at entry point.
- (a) If the cyanotoxin concentration exceeds a health advisory level in a sample collected at the entry point, the water supplier must collect a confirmation sample from the entry point as soon as practical, but no later than 24 hours after receiving results.
 - (b) A water supplier must sample in the distribution system according to OAR 333-061-0570(4) in order for a health advisory to be lifted. Additional distribution system monitoring may be required by the Authority based on sampling results and other relevant circumstances. Distribution monitoring may cease when the advisory is lifted.
 - (c) Once the health advisory is lifted as permitted under OAR 333-061-0570(4), water suppliers must monitor no less frequently than prescribed in sections (2) and (3) of this rule.
- (5) The Authority may extend the monitoring timeline required pursuant to this rule on a case-by-case basis upon a request from a water supplier, when the water supplier has a logistical problem timely collecting or analyzing samples in accordance with the requirements of OAR 333-061-0510 to 333-061-0580. When an extension is approved by the Authority, the Authority must specify in writing how much time the water supplier has to monitor. Examples of logistical problems could include, but are not limited to:
- (a) Extreme weather conditions that create unsafe travel or on-site conditions for the person collecting the sample.
 - (b) Limited laboratory capacity on weekends and holidays.

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150

333-061-0550

Analytical Methods and Analytical Times

- (1) A water supplier must use a laboratory accredited according to OAR chapter 333, division 64 and the Oregon Environmental Laboratory Accreditation Program (ORELAP), or the Oregon Department of Environmental Quality Laboratory to analyze samples required by OAR 333-061-0510 to 333-061-0580.
- (2) For total microcystins, a water supplier must ensure that samples are analyzed using EPA method 546, or another EPA-approved method that applies at the time samples are analyzed.
- (3) For cylindrospermopsin, a water supplier must ensure that samples are analyzed using the DEQ Method for Determination of Cyanotoxins in Raw and Finished Water by ELISA Method, or another EPA-approved method that applies at the time samples are analyzed. If detections are found greater than 0.7 ug/L at the entry point or distribution system, all samples taken in response to this detection must be analyzed using EPA Method 545, or another EPA-approved method that applies at the time samples are analyzed.
- (4) For cyanotoxin-producing genes, a water supplier must ensure that samples are analyzed using quantitative real-time polymerase chain reaction (qPCR) per DEQ Method for the detection and quantitation of Cyanobacteria and their toxin producing genes by qPCR, or another EPA-approved method that applies at the time samples are analyzed.
- (5) The water supplier must ensure that laboratories and subcontracted laboratories start analysis of samples within one business day of receipt.

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150

333-061-0560

Reporting

- (1) If the cyanotoxin concentration exceeds a health advisory level in a sample collected at any entry point or distribution system location in accordance with OAR 333-061-0540, the water supplier must report the result to the Authority and all purchasing systems served by the water supplier as soon as possible but no later than 24 hours after receiving the results. If the cyanotoxin concentration exceeds a health advisory level in a confirmation sample collected at the entry point in accordance with OAR 333-061-0540(3), the water supplier must report the result to the Authority and all purchasing systems served by the water supplier as soon as possible but no later than eight hours after receiving the results.

- (2) The water supplier must ensure that laboratories follow the reporting requirements as follows:
- (a) Laboratories using EPA method 546, the DEQ Method for Determination of Cyanotoxins in Raw and Finished Water by ELISA Method, or the DEQ Method for the detection and quantitation of Cyanobacteria and their toxin producing genes by qPCR must validate results and report any analysis that exceeds a health advisory level directly to the Authority and to the water supplier as soon as possible but no later than 48 hours or two business days after analysis begins. Laboratories using EPA method 545 must validate results and report any analysis that exceeds a health advisory level directly to the Authority and to the water supplier as soon as possible but no later than 72 hours or three business days after analysis begins. Laboratories must report any analysis received from a subcontracted laboratory directly to the Authority and the water supplier within 24 hours or one business day after receiving the validated results:
 - (b) Subcontracted laboratories using EPA method 546, the DEQ Method for Determination of Cyanotoxins in Raw and Finished Water by ELISA Method, or the DEQ Method for the detection and quantitation of Cyanobacteria and their toxin producing genes by qPCR must validate results and report any analysis that exceeds a health advisory level directly to the contracting laboratory as soon as possible but no later than 48 hours or two business days after analysis begins. Subcontracted laboratories using EPA method 545 must validate results and report any analysis that exceeds a health advisory level directly to the contracting laboratory as soon as possible but no later than 72 hours or three business days after analysis begins:
 - (c) Laboratories must report any analytical result used to determine whether an advisory may be lifted pursuant to OAR 333-061-0570(4) to the Authority and to the water supplier within 24 hours of validation;
 - (d) Laboratories must report any analytical result greater or equal to 0.3 ug/L for cyanotoxins and greater than 2500 gene counts/mL to the Authority and the water supplier within 24 hours of validation;
 - (e) Laboratories must report all other analytical results less than the health advisory levels to the Authority within 10 days of the end of the month the sample was collected; and
 - (f) Analyses required by OAR 333-061-0540 must be uploaded by the laboratory to the Authority in an approved XML format or submitted in a format approved by the Authority.

333-061-0570

Public Notification

Water suppliers must notify the public as follows.

- (1) Issuance of a health advisory.
 - (a) If any cyanotoxin concentration from a confirmation sample exceeds any health advisory level, the water supplier and any suppliers that purchase water from that system must issue a health advisory as soon as possible stating that the water is not safe to drink for the applicable populations per OAR 333-061-0530, but no later than 24 hours of receipt of results.
 - (b) The water supplier must provide notice to persons served by the water system using one or more of the following forms of delivery, upon approval by the Authority:
 - (A) Appropriate broadcast media such as radio, television, and social media;
 - (B) Posting of the notice in conspicuous locations throughout the area served by the water system;
 - (C) Hand delivery of the notice to persons served by the water system; or
 - (D) Another delivery method approved in writing by the Authority.
 - (c) The public notification must include, at a minimum, the cyanotoxin and health advisory level exceeded, the sample collection dates, dates results were received, locations of the samples, persons affected, and the standard health effects language in section (6) of this rule.
- (2) The Authority may allow a water supplier additional time to issue an advisory, in order to await additional results or implement operational changes to reduce cyanotoxin levels, including but not limited to switching sources and optimizing treatment. If the Authority allows additional time, the water supplier must issue public notification to all customers within 24 hours of receiving the confirmation sample results. The notification must include the date the samples were collected, the dates results were received, whether the sample was collected at the entry point or in the distribution, the results of the analyses, and steps the water supplier is taking to minimize risk to public health.
- (3) If a water supplier exceeds a health advisory level in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the Authority may, in writing, allow the

system to limit distribution of the public notice to only persons served by that portion of the system serving water that exceeds the health advisory level.

- (4) Unless otherwise specified by the Authority based on public health and safety considerations, a health advisory must remain in effect until the following occur:
 - (a) Cyanotoxin concentrations are at or below the applicable health advisory level in two consecutive samples collected a minimum of 24 hours apart at the entry point; and
 - (b) Cyanotoxin concentrations are at or below the applicable health advisory level in two consecutive sets of samples collected a minimum of 24 hours apart at representative distribution sampling points.
- (5) Each water supplier that detects a cyanotoxin in any sample collected in accordance with OAR 333-061-0540 must include the following in the consumer confidence report required by OAR 333-061-0043:
 - (a) The range of concentrations detected and highest single measurement of cyanotoxin concentration in samples collected at raw water, entry points, and distribution sampling points, the cyanotoxin health advisory level, and whether an advisory was required to be issued;
 - (b) The range of cyanotoxin-producing gene counts detected, and highest single concentration of cyanotoxin-producing genes found in raw water samples;
 - (c) Information regarding the major source of the contaminant using definitions found in OAR 333-061-0520(2) and (8). Alternate language may be used if approved by the Authority;
 - (d) Persons affected, if not all; and
 - (e) Standard health effects language in section (6) of this rule.
- (6) Water suppliers must include the following standard health effects language in public notification and consumer confidence reports: "Consuming water containing concentrations of cyanotoxins over the health advisory level for more than 10 days may result in upset stomach, diarrhea, vomiting, as well as liver or kidney damage. Seek medical attention if you or your family members experience illness."

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150

333-061-0580

Record Keeping

- (1) Water suppliers must retain, on its premises or at a convenient location near its premises, records of cyanotoxin analyses made pursuant to OAR 333-061-0540 to 333-061-0570 for not less than 10 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:
 - (a) The date, place and time of sampling, and the name of the person who collected the sample;
 - (b) Identification of the sample as to whether it was collected at a raw, entry point or distribution sampling location;
 - (c) Date of analysis;
 - (d) Laboratory and person responsible for performing analysis;
 - (e) The analytical method used; and
 - (f) The results of the analysis.
- (2) Water suppliers must retain, on its premises or at a convenient location near its premises, health advisories issued in accordance with OAR 333-061-0570, and consumer confidence reports issued in accordance with OAR 333-061-0510 to 333-061-0580 and OAR 333-061-0043, for not less than 10 years.

Stat. Auth.: ORS 448.123, 448.131 and 448.150

Stats. Implemented: ORS 448.123 and 448.150