

ALAMEDA COUNTY WATER DISTRICT

43885 So. Grimmer Boulevard
Fremont, CA 94538

OPERATIONS & WATER QUALITY COMMITTEE

AGENDA

Tuesday, September 5, 2023

4:15 p.m.

ACCESSIBLE PUBLIC MEETINGS: Upon request, ACWD will provide written agenda materials in appropriate alternative formats, or disability-related modification or accommodation, including auxiliary aids or services, to enable individuals with disabilities to participate in public meetings. Please send a written request at least 72 hours before the meeting to the District Secretary, ACWD, 43885 S. Grimmer Blvd., Fremont, CA 94538, or to gina.markou@acwd.com stating your name, mailing address, phone number, and brief description of the requested materials and preferred alternative format or auxiliary aid or service.

MEMBERS OF THE PUBLIC MAY PARTICIPATE IN THIS MEETING IN PERSON AT THE DISTRICT OFFICE LOCATED AT 43885 SOUTH GRIMMER BOULEVARD, FREMONT OR VIA WEBINAR OR TELECONFERENCE.

*** Please note that Agenda Item No. 3 will involve an on-site tour staff at a remote location and will not be available via webinar or teleconference. After the meeting is called to order and any public comments are received, Agenda Item No. 2 will be presented and available via webinar or teleconference. After Agenda Item No. 2, Committee Members and members of the public participating in-person will walk to the District maintenance yard facility for a tour. Members of the public arriving after the start of the meeting should notify the front desk of their interest in attending the Committee meeting. The meeting will adjourn at the conclusion of the tour.*

TO PARTICIPATE VIA WEBINAR, USE THE FOLLOWING LINK: <https://us02web.zoom.us/j/81065086757?pwd=aTkvUlhJYnBHMVBmRTlwRDRMQ2JSZz09> (PASSCODE: **709556**). TO MAKE COMMENTS OR ASK QUESTIONS DURING THE MEETING, “RAISE YOUR HAND” OR USE THE CHAT OR Q&A FEATURE IN THE ZOOM APP AT ANY TIME, OR UNMUTE AND SPEAK WHEN INVITED.

TO PARTICIPATE VIA TELECONFERENCE, CALL ANY OF THE FOLLOWING PHONE NUMBERS: 1-669-900-9128 OR 1-346-248-7799 OR 1-301-715-8592 FOLLOWED BY **810 6508 6757**. TO MAKE COMMENTS OR ASK QUESTIONS DURING THE MEETING, TYPE *9 ON YOUR DIAL PAD TO “RAISE” OR “LOWER” YOUR “HAND” AT ANY TIME, OR TYPE *6 TO MUTE OR UNMUTE AND SPEAK WHEN INVITED.

THIS AGENDA AND ALL ACCOMPANYING MATERIALS CAN BE VIEWED ON THE ALAMEDA COUNTY WATER DISTRICT WEBSITE AT: www.acwd.org.

9/1/2023

1. Public Comments
2. Cyanotoxin Update
Presenter: Cynthia Ha, Environmental Engineer
3. Fleet and Equipment Facility Tour
Presenter: Dan Stevenson, Facility Maintenance Manager

Alameda County Water District

Cyanotoxin Update

Cynthia Ha

**Environmental Engineer
Water Production Division**

Operations and Water Quality Committee Meeting

September 5th, 2023

Cyanotoxins Background

- Cyanobacteria (e.g., blue-green algae) are naturally occur in surface water.
- Cyanobacteria can produce cyanotoxins
 - Microcystin
 - Cylindrospermopsin
 - Anatoxin-a
 - Saxitoxin
- Concern: acute health effects in humans.



<http://eoimages.gsfc.nasa.gov>

EPA Health Advisory Levels for Cyanotoxins

Compound	Bottle-fed Infants and Preschoolers ¹	School-age Children and Adults	Exposure Duration
Microcystin	0.3 ug/L	1.6 ug/L	10-day ²
Cylindrospermopsin	0.7 ug/L	3.0 ug/L	10-day ²

¹ “Preschoolers” are defined as less than 6 years old.













² While briefly exceeding these advisory levels may not indicate an immediate emergency, EPA recommends utilities use treatment techniques to lower levels as quickly as possible.

OEHHA Recommended Short-term and Acute NLs

Cyanotoxin	Short-term NLs	Health Effects	Acute NLs	Health Effects
Anatoxin- a	4 µg/L (Up to 1 month)	Neurotoxicity	8 µg/L (Up to 1 day)	Neurotoxicity
Saxitoxins	NA ^a	Neurotoxicity	0.5 µg/L (Up to 1 day)	Neurotoxicity
Microcystins	0.03 µg/L (Up to 3 months)	Spermotoxicity	3 µg/L (Up to 1 day)	Liver damage
Cylindrospermopsin	0.3 µg/L (up to 3 months)	Liver Toxicity	3 µg/L (Up to 1 day)	Liver & Kidney Cell Death

^aRecommendations for short-term NLs and the one-day NL of 0.6 µg/L for saxitoxins were provided to the State Board May 3, 2021. The saxitoxin value was superseded in June 2022.

Effectiveness of Treatment Technologies for Removal of Cyanotoxins

Technology	Microcystins	Cylindrospermopsin	Anatoxin-a	Saxitoxin ¹
Ozone				Not effective
Free chlorine				Effective
PAC Adsorption				NA
Chloramine				Not effective

 Excellent
  Good
  Moderate
  Ineffective

“Excellent” = the technology can reliably reduce the toxin to below the HA level.

“Very good” = the technology is could destroy the toxin to below the HA level, but may require a longer contact time or a higher dose than typically used.

“Moderate” = the technology is moderately effective, and needs to be supplemented by another technology in order to destroy the toxin to below the HA level.

“Ineffective” = the technology did not reduce the toxins by any measurable amount under the conditions evaluated in this study.

Phase 1: **Track** Source Water for Cyanotoxins

- Collect RW2 samples for strip-tests
- Evaluate cyanotoxin data from SBC's raw water monitoring
- Evaluate cyanotoxin data from DWR's monitoring
- Evaluate cyanotoxin data from EBRPD's Lake Del Valle monitoring

Cyanotoxins detected in RW2?

Phase 2: **Analyze** WTP2 for Cyanotoxins

- Collect RW2 samples for ELISA (<72 hrs TAT)
- Collect FW2 samples for ELISA (<72 hrs TAT)
- Evaluate WTP2 water quality (i.e., ozone dose)
- Communicate with SBCs
- Communicate with DWR

Cyanotoxins detected in FW2 above HA?

Phase 3: **Optimize** WTP2 treatment for Cyanotoxins

- Collect plant profile samples for ELISA and LC/MS/MS (<72 hrs TAT)
- Optimize ozonation and free chlorination process
- Communicate with SBCs
- Communicate with DDW

Post-optimization, cyanotoxins detected in FW2 > HA?

Phase 4: **Elevated** Cyanotoxins Response

- Consider activating other sources or minimizing/eliminating WTP2 usage
- Communicate with Ops Manager, Exec Staff
- Communicate with SBCs
- Communicate with DDW
- Communicate with general public, sensitive subpopulations

ACWD Cyanotoxin Monitoring

- Objective: Ensure that cyanotoxins in our delivered water are below the EPA health advisory levels.
- Reviews weekly and monthly cyanotoxin data from DWR, Valley Water, Zone 7 and EBRP.
- Collects raw water samples weekly from April to October, and monthly from November to March.
- Collects finish water samples when cyanotoxins are detected in the source water.
- Extends monitoring beyond the normal schedule depending on source water quality.

Questions?



Next Presentation

Fleet and Equipment Facility Tour

Dan Stevenson

Facility Maintenance Manager

Facility Maintenance Division