CESPK-CO-OR

POLICY MEMORANDUM 24

SUBJECT: Public Notification for Cyanobacteria

24-1. Purpose. This policy memorandum represents the policy and procedures for public notification for cyanobacteria.

24-2. Applicability. This memorandum applies to all Civil Works Water Resource Projects where the Sacramento District has operations and maintenance responsibilities.

24-3. References. Latest version of;

1. California Cyanobacteria and Harmful Algal Bloom (CCHAB) Network Blue-Green Algae Voluntary Guidance Document

2. California Environmental Protection Agency State Water Resources Control Board Website: https://www.waterboards.ca.gov/water_issues/programs/swamp/freshwater_cyanobacteria.shtml

24-4. Responsibilities.

1. District. Operations Technical Section (OTS) OTS will coordinate media announcements through the Public Affairs Office (PAO).

2. Area Office. The Area Office (AO) will work cooperatively with OTS to ensure all reporting requirements are followed and completed within the required timeframe.

3. Park Manager. The Park Manager (PM) will report all cyanobacteria blooms through the Chain of Command (CoC) established in this policy. The PM will follow all reporting requirements, within the required timeframe. The PM will ensure that cyanobacteria posters are printed and posted in locations identified in this policy. The PM will review appendix A and reporting procedures with all USACE staff and volunteers.

4. All USACE Staff and Volunteers. All USACE staff and volunteers are responsible for reporting possible cyanobacteria blooms, both personally witnessed and reports of blooms received from other entities, to the PM who will confirm.

24-5. Cyanobacteria. Cyanobacteria, also known as blue-green algae, are primitive photosynthetic single celled bacteria that are naturally found in water based ecosystems. When nutrients (phosphorus and nitrogen) are present in concentrations above what would occur naturally, the algae can "bloom," or grow very quickly to extreme numbers.

24-6. Health Risks of Cyanobacteria. Not all cyanobacteria blooms are harmful, but some species are referred to as toxigenic because they have the potential to produce toxins that can cause serious illness or death in people, pets, and wildlife. Toxigenic cyanobacteria can produce three types of toxins: neurotoxins, hepatotoxins, and dermatoxins. Neurotoxins affect the nervous system. Symptoms include muscle cramps, twitching, and in extreme cases paralysis, cardiac or respiratory failure, and death. Hepatotoxins affect liver function. Dermatoxins are skin irritants. If affected water is swallowed, symptoms can include headache, cramps, diarrhea, nausea and vomiting, numbness, dizziness and fever. Skin exposure symptoms can include red skin coloration, raised rash and irritation. If any of these symptoms are severe or persist, medical attention should be sought. If pets exhibit any usual symptoms, seek advice from a veterinarian as soon as possible. The greatest risk to health comes from coming into contact with or ingesting the toxins produced by cyanobacteria while engaging in what is called "full body contact" (during swimming, skiing or jet skiing, etc.), or from inhaling spray cast up from the water's surface by recreational activities or by the wind. Children and pets are most at risk while engaging in recreation in the water because they are more likely to accidently or intentionally swallow lake water. No antidote exists for any known algal toxin currently. This makes prevention the best option for protecting against toxigenic cyanobacteria.

1. Determining if a cyanobacteria bloom is toxicogenic can only be done by conducting toxin testing. However, it is the policy of the Sacramento District to not test cyanobacterial blooms for toxicity because testing is unreliable and the results could be misleading. Our policy will instead focus on educating the public on potential risks involved with any cyanobacteria bloom. Factors that were considered in making this decision are listed below.

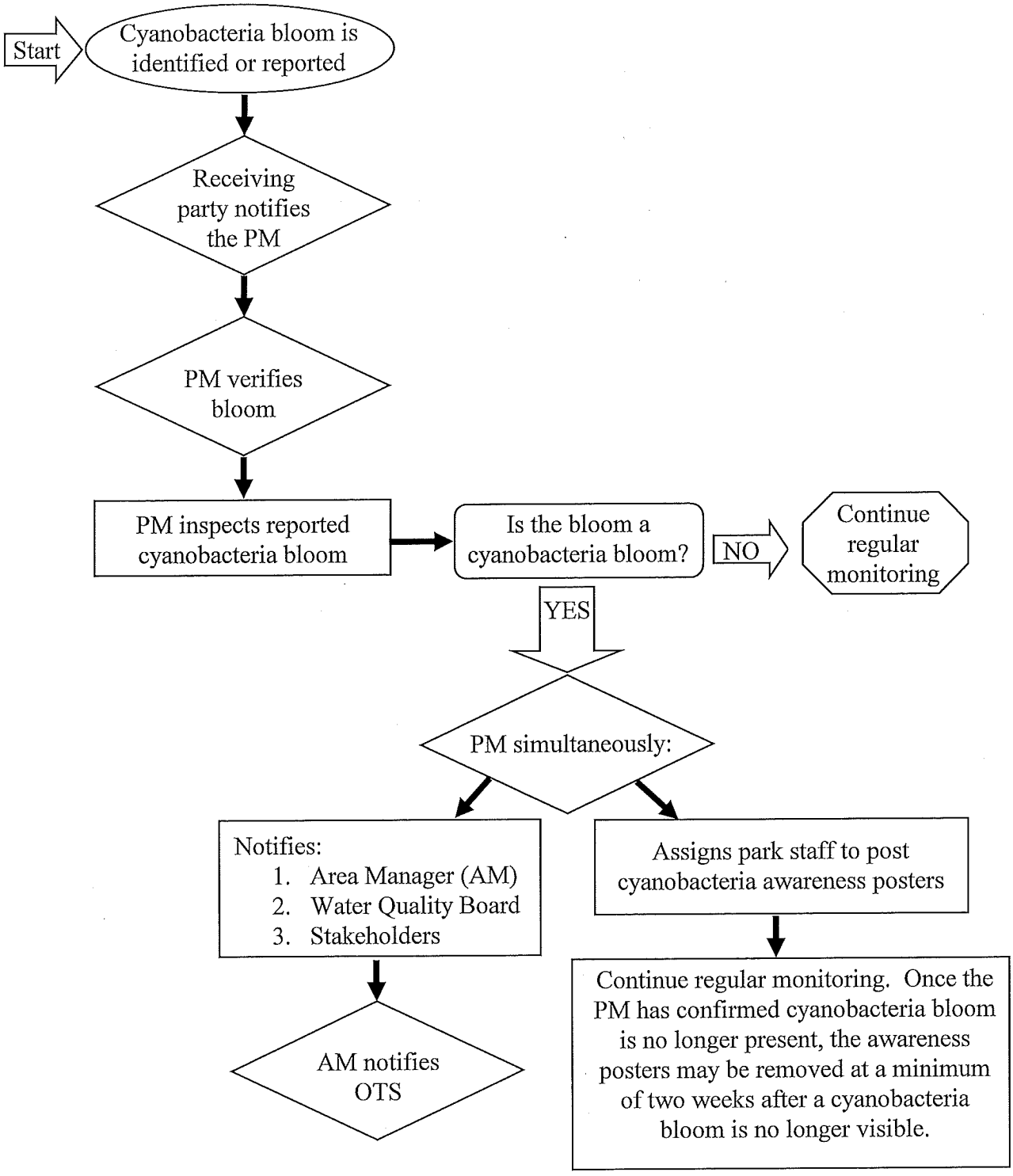
a. Water sampling can be unreliable in determining the toxin level in the entirety of the bloom. Cyanobacteria concentrations often rapidly change due to wind or other factors.

b. Currently there are few readily available analytical methods to quantify cyanobacterial toxicity and identify the profile of microcystin variants with a water sample.

c. Lab results can take several days, providing unreliable real-time toxin levels to the public. During the several day waiting period of results, bloom toxicity can change.

d. Providing a warning system to the public in which advisories are only enacted when toxins are identified using lab results, can provide an unrealistic expectation for safety of USACE to maintain, given changing environmental factors, changing bloom characteristics and staffing availability.

24-7. Monitoring. Monitoring for cyanobacteria blooms will be conducted by USACE field personnel. Monitoring will be visual inspection of natural water sources visible during normal patrol and operations. If any USACE staff or volunteers suspect a bloom or a bloom is reported (directly to USACE staff, identified through media channels, etc.), PM will confirm and USACE will monitor the bloom.



24-8. Notification and Public Posting. Use the following for identified cyanobacteria blooms.

1. Notification. Once the PM confirms the presence of a cyanobacteria bloom, they will first notify the AM. The AM will then notify OTS. The PM will next notify the California Environmental Protection Agency State Water Resources Control Board:

California Water Board's Surface Water Ambient Monitoring Program:
1-916-341-5357
Toll Free: 1-844-729-6466
CyanoHAB.Reports@waterboards.ca.gov

The PM will then notify the project's stakeholders. Stakeholders may include and are not limited to; local business owners (example: companies that use the project for recreation purposes), property owners, hydropower companies, drinking water service providers, and/or local governments. Cyanobacteria blooms should also be reported to the county agricultural commissioner if grazing lands are proximal to the affected water body, and to the local offices of the state Department of Fish and Wildlife, as well as the U.S. Fish and Wildlife, to address concerns about effect on livestock and wildlife.

2. Cyanobacteria Awareness Posting. Once the PM confirms the presence of a cyanobacteria bloom, they will ensure that cyanobacteria awareness posters are posted at various public locations on project. Appendix B serves as the approved Cyanobacteria Awareness Poster. Any changes or additional postings concerning cyanobacteria must be approved by OTS.

a. Posting will occur in areas with high visibility and points of access where the public has the potential for exposure to cyanobacteria. Geography, proximity of the bloom location, and recreational uses (boat ramps, swim beaches, etc.) should all be taken into consideration. If a bloom is identified and cyanobacteria awareness posters are posted, the park headquarters office and all fishing cleaning stations at the project will display the poster, no matter the location of the bloom on Corps owned waters.

b. The PM will dictate the removal of cyanobacteria awareness postings. At a minimum, signage will remain posted during the presence of a bloom and a minimum of two additional weeks (there should be no viable bloom recurrence during this time) before removing the postings. A PM may choose to leave signage posted even after a bloom is no longer present.

24-9. Reporting. Any medically confirmed cyanobacteria-related illnesses or fatalities, human or animal, as a result of exposure at USACE managed projects, will be reported immediately to the AM, and they will call up the CoC. All of the rules of the CoC apply, if you can't reach one person move onto the next in the chain. In addition to a phone call, please provide the AM with an email detailing the event. Reporting protocol will also be completed in compliance with *Sacramento District Policy Memorandum 20, Reporting Procedures.*

24-10. Effective Date. This memorandum is effective immediately and supersedes previous guidance regarding reporting procedures.

MAY 16 2018

Norbert F. Suter, P.E.
Chief, Construction-Operations Division

APPENDIX A

Cyanobacteria FAQs

What is cyanobacteria? Cyanobacteria, also known as blue green algae, are actually a type of ancient bacteria commonly found in water or wet areas.

What is a cyanobacteria bloom? When conditions are right, algae can rapidly build up or "bloom" on the surface of reservoirs, rivers, creeks, lagoons, lakes and ponds.

What causes blooms? Warm, slow-moving waters that are rich in nutrients like fertilizer or manure runoff can cause algae growth. Blooms can occur at any time, but are most common in late summer or early fall.

What does a cyanobacteria bloom look like? The bloom can be green, blue green, white or brown, and may look like a floating layer of scum or paint.

How do I know if a bloom is toxic? Only a few types of blue green algae are known to produce poisons. Most blooms of algae in our region are made up of harmless green algae. Determining if a cyanobacteria bloom is toxicogenic can only be done by conducting toxin testing. However, it is the policy of the Sacramento District to not test cyanobacteria blooms for toxicity because testing is unreliable in providing the public real-time toxin level information and

results could be misleading. The SPK policy will instead focus on educating the public on potential risks involved with any cyanobacteria blooms. Factors that were considered in making this decision are listed below:

a. Water sampling can be unreliable in determining the toxin level in the entirety of the bloom. Cyanobacteria concentrations often rapidly change due to wind or other factors.

b. Currently there are few readily available analytical methods to quantify cyanobacterial toxicity and identify the profile of microcystin variants with a water sample.

c. Lab results can take several days, providing unreliable real-time toxin levels to the public. During the several day waiting period of results, bloom toxicity can change.

d. Providing a warning system to the public in which advisories are only enacted when toxins are identified using lab results, can provide an unrealistic expectation for safety of USACE to maintain, given changing environmental factors, changing bloom characteristics and staffing availability.

How dangerous is toxic algae? Not all cyanobacteria blooms are harmful, but some species are referred to as toxigenic because they have the potential to produce toxins that can cause serious illness or death in people, pets, and wildlife. Toxigenic cyanobacteria can produce three types of toxins: neurotoxins, hepatotoxins, and dermatoxins. Neurotoxins affect the nervous system. Symptoms include muscle cramps, twitching, and in extreme cases paralysis, cardiac or respiratory failure, and death. Hepatotoxins affect liver function. Dermatoxins are skin irritants. If affected water is swallowed, symptoms can include headache, cramps, diarrhea, nausea and vomiting, numbness, dizziness and fever. Skin exposure symptoms can include red skin coloration, raised rash and irritation. If any of these symptoms are severe or persist, medical attention should be sought. If pets exhibit any usual symptoms, seek advice from a veterinarian as soon as possible. The greatest risk to health comes from coming into contact with or ingesting the toxins produced by cyanobacteria while engaging in what is called “full body contact” (during swimming, skiing or jet skiing, etc.), or from inhaling spray cast up from the water’s surface by recreational activities or by the wind. Children and pets are most at risk while engaging in recreation in the water because they are more likely to accidently or intentionally swallow lake water. Dogs can be exposed to particularly high levels of toxins by licking blue green algae off their fur after a swim. No antidote exists for any known algal toxin currently. This makes prevention the best option for protecting against toxigenic cyanobacteria. No documented incidents of human poisoning from blue green algae have been reported any US Army Corps of Engineers Lake in California.

Encourage the public to stay out of areas where the water has foam, scum, or mats of algae and keep children and pets out of such areas. If a pet has already swam in the water with algae, rinse them off with fresh water as soon as possible.

What about fishing and other activities? Eating fish caught during a heavy bloom can pose a health risk. Always remove the guts and liver, and rinse fillets in tap water before eating the fish. Other activities near the water such as camping, picnicking, biking and hiking are safe.

Find more information at the CA Department of Heath Public Health’s website:

https://www.waterboards.ca.gov/water_issues/programs/swamp/freshwater_cyanobacteria.shtml

Blue-Green Algae Watch

Harmful algae may be present in this water.
For your awareness:

You can swim in the water, but **stay away from algae and scum**.

Keep children away from algae in the water or on the shore.

Do not let pets and other animals go into or drink the water, or eat scum.

Do not drink the water or use it for cooking.

For fish caught here, **throw away guts and clean fillets** with tap water or bottled water before cooking.

When in Doubt, Stay Out

Avoid water that is foamy, scummy, thick like paint, pea green, blue-green, or reddish brown.

Blue-green algae may cause skin rash, vomiting, diarrhea, cramps, dizziness, fainting, numbness, and paralysis.

Call your doctor or veterinarian if you or your pet get sick after going in the water.

For information on harmful algae, visit:
mywaterquality.ca.gov/monitoring_council/cyanohab_network

For local information, contact:
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