

Setting the Stage: Microcystin Methods Overview

Summary Options

ELISA-Field
(Tube/Strips)

ELISA-Lab

HPLC-UV (PDA)

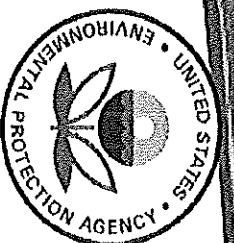
HPLC-MS/MS

Specificity	Total Microcystins	Total Microcystins	Total Microcystins-- limited specificity	6 Specific Microcystin congeners (EPA method 544)
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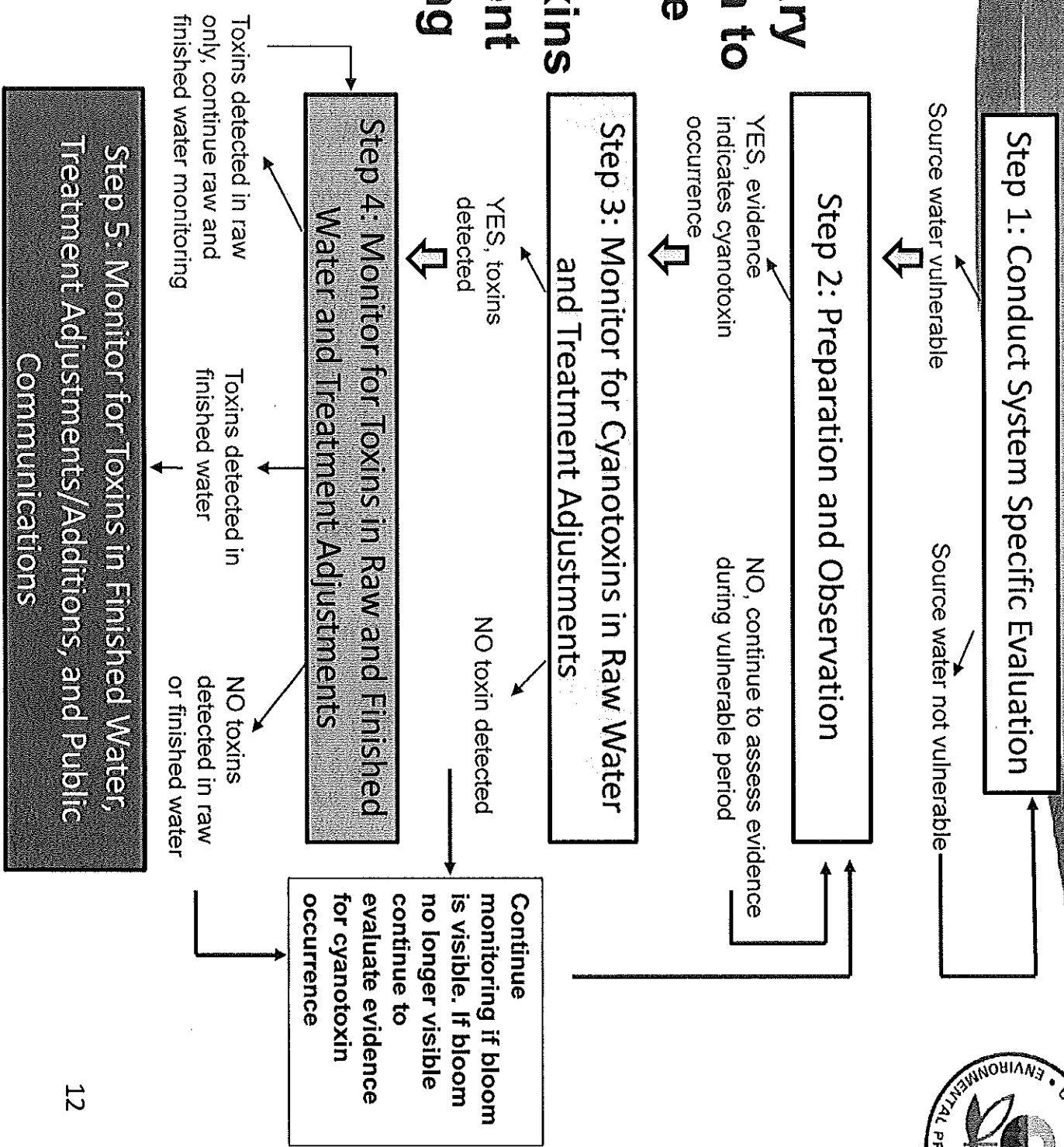
Approx. Limit of Quantification (LOQ)	~0.5 – 1 ug/L	~ 0.3 µg/L	~ 0.3 µg/L	~ 0.02 µg/L
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Time to result	10 – 60 minutes	4 hours or less	~ 1 day	~ 1 day
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Estimated Cost per Analysis	\$30-100	\$50-150	\$150-250	\$200-350
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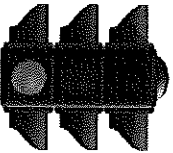
Preliminary Approach to Determine Whether Cyanotoxins are Present in Drinking Water



Step 5: Monitor for Toxins in Finished Water, Treatment Adjustments, and Public Communications

Low Level

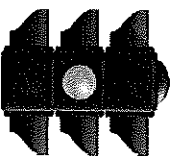
Microcystins: $\leq 0.3 \mu\text{g/L}$



Continue communication with State primary agency and local health officials on monitoring results.

Medium Level

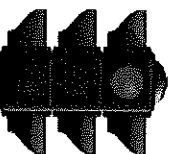
Microcystins: $> 0.3\mu\text{g/L} \leq 1.6 \mu\text{g/L}$



Notify local public health agency, primary agency and the public. Recommend use of alternative sources for children younger than school-age.

High Level

Microcystins: $> 1.6 \mu\text{g/L}$



Notify local public health agency, primary agency and the public. Recommend Do Not Drink/ Do Not Boil Water advisory for all consumers.

Communication

Treatment Actions

Modify treatment as necessary to keep algal toxins below HA values.

Adjust existing treatment to reduce the concentration to below $0.3 \mu\text{g/L}$ (MC) as soon as possible. Modify or amend treatment as necessary.

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Monitoring

Continue sampling raw and finished water at least 2-3 times per week until levels are below quantification in at least 2-3 consecutive samples in raw water, then return to Step 3.

Continue sampling raw and finished water daily until finished water levels are below quantification in at least 2-3 consecutive samples.

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