



Department of
**Environment &
Conservation**

TDEC Drinking Water Update

March 2024



DWR - Drinking Water Updates

Field Offices

Environmental Field Offices

<https://www.tn.gov/environment/contacts/about-field-offices>

Have a question about
Tennessee's Environment?
Call 1-888-891-TDEC (8332)
ask.tdec@tn.gov

Nashville

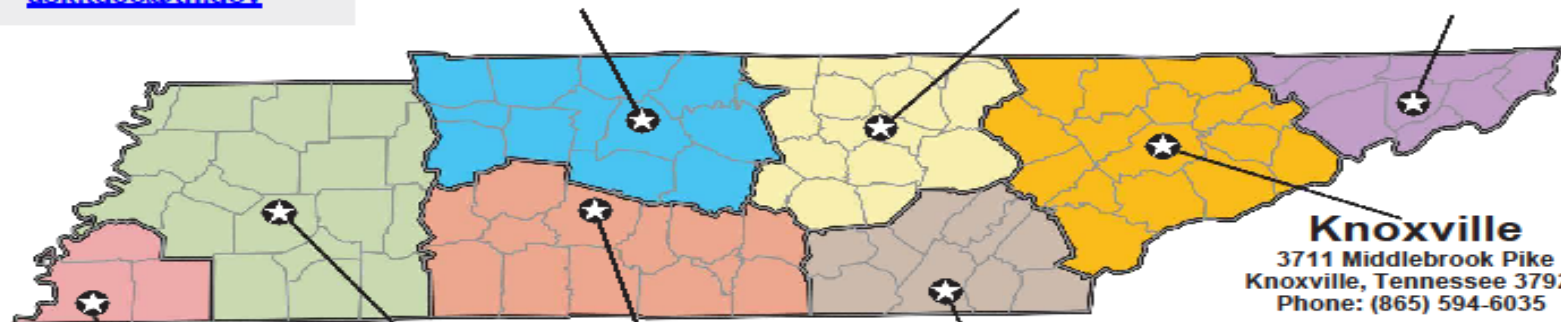
711 R.S. Gass Boulevard
Nashville, Tennessee 37243
Phone: (615) 687-7000

Cookeville

1221 South Willow Avenue
Cookeville, Tennessee 38506
Phone: (931)520-6688

Johnson City

2305 Silverdale Road
Johnson City, Tennessee 37601
Phone: (423)854-5400



Jackson

1625 Hollywood Drive
Jackson, Tennessee 38305
Phone: (731) 512-1300

Chattanooga

1301 Riverfront Parkway, Suite #206
Chattanooga, Tennessee 37402
Phone: (423) 634-5745

Knoxville

3711 Middlebrook Pike
Knoxville, Tennessee 37921
Phone: (865) 594-6035

Memphis

8383 Wolf Lake Drive
Bartlett, Tennessee 38133
Phone: (901) 371-3000

Columbia

1421 Hampshire Pike
Columbia, Tennessee 38401
Phone: (931) 380-3371



Field Office Contacts

- Johnson City Field Office
 - Will Parks, Program Coordinator, William.Parks@tn.gov
 - *Jason Benton, Jason.Benton@tn.gov
 - *Dawn Taylor, Dawn1.Taylor@tn.gov
- Knoxville Field Office
 - Rob Ramsey, Program Coordinator, Robert.Ramsey@tn.gov
 - Greg Mize, Greg.Mize@tn.gov
 - Hassan Sanaat, Hassan.Sanaat@tn.gov
 - Jenna Williams, Jenna.Williams@tn.gov
 - Brad Antone, Brad.Antone@tn.gov
 - Sarah Snyder, Sarah.Snyder@tn.gov
 - Hailey Kraft, Hailey.Kraft@tn.gov
 - Caitlin Winburn, Caitlin.Winburn@tn.gov

* Indicates microbiological lab certification staff

Field Office Contacts

- Chattanooga Field Office

- Angela Oberschmidt, Prog. Coord., Anglea.Oberschmidt@tn.gov
- *Amy Francis, Amy.Francis@tn.gov
- Blaine Lindsey, Blaine.Lindsey@tn.gov
- Tess Kaiser, Tess.Kaiser@tn.gov



- Cookeville Field Office

- Lonnie McCloud, Manager, Lonnie.McCloud@tn.gov
- David Phillips, David.Phillips@tn.gov

Field Office Contacts

- Nashville Field Office
 - Michael Murphy, Program Coordinator, MichaelP.Murphy@tn.gov
 - Thomas Killion, Thomas.Killion@tn.gov
 - Medhi Sadri, Mehdi.Sadri@tn.gov
 - Tayrn Hicks, Taryn.Hicks@tn.gov
- Columbia Field Office
 - Crystal Stacey, Program Coordinator, Crystal.Stacey@tn.gov
 - *Will Pride, Will.Pride@tn.gov
 - Lane Smith, Lane.Smith@tn.gov
 - Brock Glass, Brock.Glass@tn.gov

Field Office Contacts

- Jackson Field Office
 - Daniel Pillow, Program Coordinator, Daniel.Pilliow@tn.gov
 - James Roberts, James.C.Roberts@tn.gov
 - Noah Reid, Noah.Reid@tn.gov
 - Libby Williams, Libby.Williams@tn.gov
 - Ashleigh Simons, Ashleigh.Simons@tn.gov
- Memphis Field Office
 - Kyle Mabry, Field Office Manager, Kyle.Mabry@tn.gov
 - Brandon Stuart, Program Coordinator, Brandon.Stuart@tn.gov
 - Courtney Driver, Courtney.Driver@tn.gov
 - Nicholas Bolin, Nicholas.Bolin@tn.gov

Lead & Copper – LCRR

- Lead & Copper Rule Revisions (LCRR)
 - DWR was granted an extension for promulgating the LCRR
 - Extension is until December 2025
 - EPA will oversee implementing lead and copper program
 - Division will still issue notices of potential violations



U.S. ENVIRONMENTAL PROTECTION AGENCY



Photo: Miguel Del Toral/Illustration: Paula Friedrich/WBEZ

Lead & Copper – LCRR

- Under the extension, the requirements for Lead & Copper compliance as it was as of July 2020 is in place. However, certain aspects of LCRR will be implemented:
 - Lead Service Line Inventory (LSLI) is still a priority and due by October 16, 2024
 - Reflects only a records-based review of current and historical documents to develop the list
 - <https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule>
 - Use Lead Service Line Inventory spreadsheet located on our web-site: <https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/drinking-water-redirect/lead-and-copper-rule.html>
 - Systems still required to notify customers of known or potential lead service lines, including galvanized needing replacement and unknowns within 30 days of completion of LSLI and annually thereafter

Lead & Copper - LCRR

- Extension requirements Cont'd
 - Updating and submitting the LSLI
 - Update and submit within 30 days of each tap sampling event
 - Providing a Tier 1 public notice for Lead Action Level Exceedances on 90th percentile calculations
 - Copy of public notice to consumers and Division within 24 hours
- Lead service line replacement plans / actions are not required under extension but are encouraged and recommended to get ahead of the game
- 1st and 5th liter sampling is not implemented during the extension time period

Lead & Copper - LCRR

- What can systems be doing while waiting for Lead and Copper Rule Improvements (LCRI) to become final:
 - Work with local schools and daycares to participate in the Water Infrastructure and Improvements for the Nation (WIIN) Act monitoring
 - May be able to use this monitoring data under LCRI
 - <https://www.tn.gov/health/cedep/environmental/safe-places/safe-operation/drinking-water/water-lead-testing.html>
 - Start formulating a sampling plan once service inventory is complete
 - List of tap sample site locations and a list of Water Quality Parameter locations
 - Start planning for service line replacements

Lead & Copper Rule Improvements (LCRI)

- Still proposed, trying to finalize by October 16, 2024, to help figure out how transition from LCRR to LCRI
 - What happens between 2025 and 2027 is still up in the air



- Heavy on notifications to consumer and State
- Pushes full lead service line replacement within 10 years

Proposed LCRI – New Tier Designations

Tier	CWSs	NTNCWSs
1	SFRs with Lead premise plumbing or LSL.	Structures with Lead premise plumbing or LSL.
2	MFRs and Non-Residential Buildings with Lead premise plumbing or LSL.	N/A
3	SFSs with galvanized service lines or premise plumbing that is or ever could have been downstream of an LSL or Lead connector. SFSs with a Lead connector (< 2')	Structures with galvanized service lines or premise plumbing that is or ever could have been downstream of an LSL or Lead connector. Structures with a Lead connector (< 2')
4	SFSs with Copper pipes with Lead solder installed before July 1988, the effective date of the TN's Lead ban	N/A
5	Representative sample where the plumbing has lowest lead exposure risk.	Representative sample where the plumbing has lowest lead exposure risk.

Proposed LCRI

- Number of sample locations based on population remain unchanged
 - Sampling focused on lead lines as priorities
 - 1st liter and 5th liter sampling on lead service lines only
- System classifications remains unchanged, but important on certain requirements
 - Large systems > 50,000 population
 - Medium systems > 10,000 population to ≤ 50,000 population
 - Small system ≤ 10,000 population, sometimes there is a reference to systems < 3,300 in some of the compliance items

Proposed LCRI

- Lead Action Level (AL) / 90th percentile
 - Drops to 0.010mg/L or 10 ppb
 - Currently about 34 systems over the last 6 years would have exceeded the AL
 - Copper AL remains at 1.3 mg/L
- Calculating 90th percentile changes
 - Use highest level of 1st liter and 5th liter samples
 - If enough Tier 1 and Tier 2 sites, 90th percentile is based on those sites alone even if more sites are sampled than required
 - If not enough T1 and T2 sites, use the highest T3, T4, and T5
 - Copper is highest 1st liter sample from T1 – T5

Proposed LCRI – Lead Service Line Inventory

- Using latest service line inventory, create a “baseline” inventory within 3 years of final rule
 - Includes service lines and any lead connectors (w/identification of connector)
 - Lead, replaced lead, never lead, unknown, no connector present
- Update submitted to state annually
 - Systems with all non-lead lines not required to submit updates unless lead or galvanized needing replacement is discovered
- Must identify all unknowns within 10 years
 - Using construction & plumbing codes, permits, records, other documentation that indicates service line or connector material
 - Water system records to include dist. Maps, recent or historical records for each service connection, meter installation, hist. capital improvements, SOPs, or inspections of dist. system that may indicate material composition
 - Other sources if approved by the State

Proposed LCRI – Service Line Inventory - Validation

- Verify the accuracy of the non-lead category by confirming a percentage / number of non-lead lines that were not determined by a record mentioned earlier
- Depending on pool size validations can range from 20% for systems with <1500 non-lead lines down to 0.7% for systems with > 50,000 non-lead validation pools
- Verification by visual inspection at a minimum of two sites: meter box, in house, or excavation in between
- Deadline for verification is 7 years after rule becomes final

Proposed LCRI – Service Line Replacement

- Service Line Replacement Plan due from systems with lead, galvanized needing replacement, and unknowns three years after rule made final also needs to be made available to public .
- Must include:
 - Strategy for identifying unknown service lines
 - SOP for conducting a full-service line replacement
 - 10% rate based on 3 year rolling average
 - Techniques for replacing, plans for procuring materials, etc.,
 - Communication strategy to inform customers prior to full or partial replacement
 - Procedure for consumers to flush their service lines and premise plumbing afterwards & following disturbances where lead, galvanized needing replacement, and unknowns are disturbed

Proposed LCRI – Service Line Replacement

- Replacement Plan requirements cont'd
 - Strategy to prioritize service line replacement for known lead lines and communities disproportionately impacted by lead or those sensitive to effects of lead
 - Funding strategy for conducting service line replacement
 - Communication strategy to inform residential & non-residential customers about service line replacement plan & program
 - Identification of any laws or regulations that affect water system's ability to gain access to conduct full replacement
 - Include citation and any laws that require customer consent or cost sharing

Proposed LCRI – Dist. System & Site Assessment

- Renamed Find and Fix requirement in LCRR
- For any single tap sample >0.010 mg/L
- Within 5 days of receiving results, sample at a WQP site on the same size main in same pressure zone & located within $\frac{1}{2}$ mile radius of site
 - If WQP site is not available, must add sites
 - Small water systems have 14 days to collect
- Within 30 days of receiving results, collect and analyze a follow-up lead sample
 - Results submitted to the State but not used in 90th percentile if not analyzed using EPA approved method
- Additional requirements may apply including Follow-up sampling, adjusting treatment, flushing protocols, and submitting recommendations along with cause, if known

Proposed LCRI – Lead & Copper Sampling

- All systems will revert to standard monitoring (two consecutive 6 month periods)
- If there are no lead (0.010 mg/L) or copper (1.3 mg/L) AL exceedances for the two 6-month periods, systems can reduce to annual monitoring, but still at the standard number of samples
- If the water system with a 90th percentile under the Practical Quantification Limit (PQL) of 0.005 mg/L for lead and 0.65 mg/L for copper, systems can reduce to triennial monitoring directly from standard monitoring
- Within 3 days of receiving results, consumers must be notified

Proposed LCRI – Water Quality Parameters

- Water Quality Parameters (WQPs) reduced to:
 - pH
 - Alkalinity
 - Orthophosphate when an inhibitor containing orthophosphate is used
 - Silica when an inhibitor containing a silicate compound is used
 - Any parameters specified by the State
 - Maybe free chlorine , ORP?
- Medium sized systems with corrosion control treatment may be subject to WQPs
 - Monitoring conducted every 6 months
 - Large systems already required to sample WQPs

Proposed LCRI – School / Child Care Sampling

- All community systems required to conduct public education and lead sampling at schools they serve unless the buildings were constructed or had full plumbing replacements after July 2014
- Must compile a list of schools and child care facilities served and submit it to the State within 3 years of rule becoming final
 - Update list every five years
 - Provide educational material, 3T for example, to sites annually
- Sample 20% of the schools each year
 - WIIN Act sampling and TN Dept of Education sampling may be used if sampling meets LCRI protocol
 - Five samples per school, 2 for child care
 - First draw sample & sample volume of 250 mL

Lead & Copper Program

- Upcoming virtual training TBD late spring /early summer 2024 & possibly one at Fleming Training Center
 - Service Line Inventory
 - What happens when October 16, 2024, arrives
 - Planning on having templates for 24-hour notice, Potential Lead Exposure Risk Notice (PLERN)
- Questions about developing your service line inventory contact Jennifer Murray, (615) 981-6546
 - Jennifer.Murray@tn.gov

Revised Synthetic Organics Program

- EPA Audit in February 2022 noted that the Division was not implementing the waiver program for Synthetic Organic Contaminant's (SOCs) properly.
- Need written request along with justification for granting waiver
- Three-page fillable document for systems to submit a written request for waivers
 - One page is information for standard and reduced monitoring

Revised Synthetic Organics Program

- Following 2012 process of monitoring and basing results on monitoring results
- Monitor for 19 parameters, remaining are automatically waived due to being banned for 30 years +
- Sampling will start with next round of water system's SOCs
- Monitoring for 19 parameters every nine years
- Waivers and reductions based on historical sampling
- For reduced three-year sampling, submit completed form along with initial 9-year monitoring results
 - Repeat at the 6-year waiver period (second 3 year)
- Atrazine and 2,4-D will not be waived due to the usage across the state.

Stop me if you have heard this before...



[This Photo](#) by Unknown Author is licensed under [CC BY](#)

PFAs Sampling

- Currently being monitored in the finished water through UCMR 5
- EPA releases data quarterly.
- Water Research Foundation, Project 5124
 - <https://www.waterrf.org/>
 - Search for 5124
 - One Water Toolkit & UCMR 5 Toolkit
 - Do have to sign up for User Plus account to access



This Photo by
Unknown Author is
licensed under [CC BY-
NC](#)

PFAs Sampling

- Division is conducting a sampling event that looks at the raw water
 - Need to have a true raw water sample tap available
 - Web-site for PFAs sampling dashboard
 - <https://www.tn.gov/environment/policy/pfas.html>
 - Covers both Raw Water Sampling and UCMR 5 data received
 - To date, about 355 raw water samples collected



PFOA /PFOS Regulations

- EPA anticipates finalizing the rule by the end of 2023?
- 4.0 parts per trillion (nanograms per liter) for PFOA & PFOS
 - MCL Compliance based on a running annual average
- Health Index (HI) for four other PFAS mixtures (PFHxS, HFPO-DA (GenX), PFNA, PFBS)
 - MCL Compliance based on a Running Annual Average
 - On-line calculator being developed, below quantitation level = 0

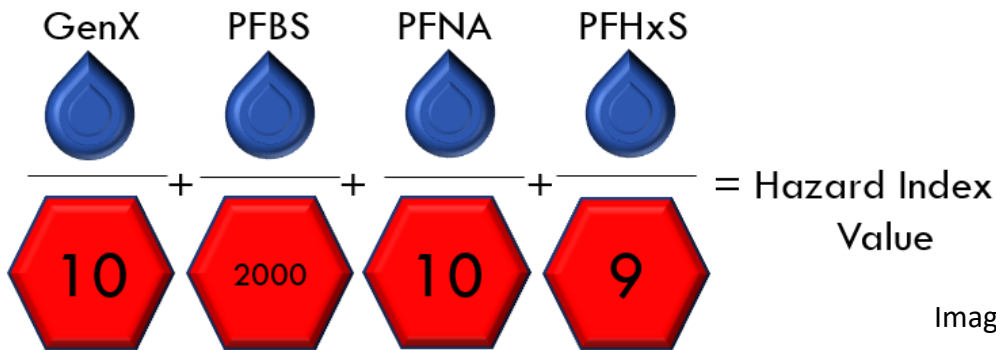


Image courtesy of EPA

PFOA / PFOS Regulations

- Initial monitoring

Type of System	Minimum monitoring Freq. & Sample Location
Groundwater CWS and NTNCWS serving greater than 10,000 persons and all surface water (includes GWUDI) CWS and NTNCWS	Four consecutive quarters per entry point to the distribution system (EPTDS). Samples must be taken at least 90 days apart.
Groundwater CWS & NTNCWS serving 10,000 or fewer persons	In a consecutive 12-month period, two samples per each EPTDS. Samples must be collected at least 90 days apart.

PFOA/PFOS Regulations

- Reduced Monitoring

If you are:	You may reduce monitoring if your:	To this level
CWS and NTNCWS serving more than 3,300 persons	Averages from initial monitoring period or compliance monitoring running annual averages for PFOA and PFOS are each < 1.3 ppt and HI <0.33	In a consecutive 12 month period, two samples per each EPTDS during each three year compliance period. Samples must be acquired at least 90 days apart
CWS and NTNCWS serving fewer 3,300 or fewer persons	Averages from initial monitoring period or compliance monitoring running annual averages for PFOA and PFOS <1.33 ppt and HI <0.33	One sample at each EPTDS during each three-year compliance period for a total of one sample per three-year compliance period.

- Return to quarterly monitoring if trigger (1.33 ppt or HI 0.33) is exceeded

Consumer Confidence Reports (CCRs)

- CCRs are due to the Division and customers by July 1
 - Certification form and supporting documentation by October 1
 - Consecutive systems by April 1
- Electronic delivery is acceptable
 - Must contain a statement that paper CCR will not be mailed and have a link that goes directly to CCR. Must also include contact information for obtaining a paper copy of the CCR.
 - Statement must be on three consecutive months of bills. One copy of the bill with the statement must be included with the CCR certification statement.
- UCMR Detections
 - Detections must be reported in separate table



CCRs – Rule Revision

- Proposed rule will be effective for CCRs delivered in 2025
 - Again, no word from EPA on a final rule
- Changes for all systems:
 - Water quality violations and action level exceedance at the front of the CCR
 - Contact information for consumers to request translation assistance, and a reasonable effort to provide reports in accessible formats, i.e., Text to Speech
 - Systems above 100,000 population must have a plan to provide CCR to limited English-proficient consumers
 - Other changes include the addition of new definitions and health statements along with information about addressing lead in water

CCRs – Rule Revision

- Delivery of the CCR
 - All community water systems will continue to be required to provide a CCR to customers and the Division by July 1 annually
 - Water systems serving 10,000 or more individuals will be required to issue a second CCR by December 31 each year
 - This second copy will be identical as the July 1 version with the exception that it have any new violations or action level exceedance between January 1 and June 30.
 - “Good faith” efforts to provide consumers that do not receive a bill with the CCR outside of the regular mailing or electronic delivery can include posting the CCR on social media or text alert messages to interested consumers

Electronic Reporting

- Drinking Water Watch (DWW)
 - <https://dataviewers.tdec.tn.gov/DWW/>
 - Sampling schedules are located on the site and will not longer be mailed out
 - Check the sampling dates, issues with Lead & Copper
 - Sodium is listed as “initialized” not sure why
 - Should update within two days of lab posting results into CMDP
 - Issue with systems that have multiple sources (wells)
 - Printable pdf versions are available upon request
- Compliance Monitoring Data Portal (CMDP)
 - <https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/drinking-water-redirect/compliance-monitoring-data-portal.html>
 - All commercial labs have been added to CMDP and are to use it in place of paper records submittal.
 - All certified bacteriological labs will use this in place of the CN-0800 and CN-0780 State forms

Cybersecurity

- Comptroller's office required utilities to have a cybersecurity plan in place by July 1, 2023
- Will be unique for each water system
- Consider the free & confidential cyber security assessment and technical assistance provided by Horsley Witten:
 - www.horsleywitten.com/cybersecurityutilities
- Other links include:
 - <https://www.awwa.org/Resources-Tools/Resource-Topics/Risk-Resilience/Cybersecurity-Guidance>
 - <https://www.epa.gov/waterriskassessment/epa-cybersecurity-best-practices-water-sector>

Cybersecurity

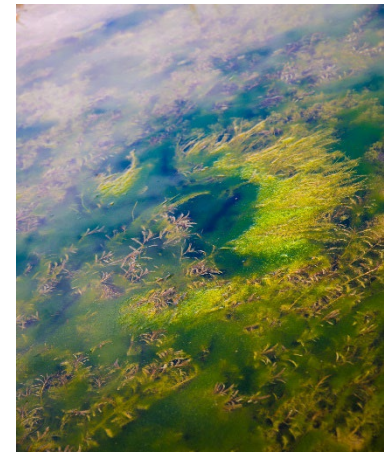
- <https://youtu.be/e2QDbgrojb0>
- More and more news reports of systems being hacked
 - PCLs hacked at a Pennsylvania water system
- The Division is encouraging systems to continue to increase their efforts on protecting themselves from cyber threats



This Photo by Unknown Author is licensed under CC BY-NC-ND

Harmful Algal Blooms

- Emerging contaminant of concern
 - Cyanobacteria or blue-green algae can give off harmful cyanotoxins
- Not all algal blooms are cyanobacteria
- Not all cyanobacteria blooms are harmful
 - Testing needs to occur over multiple points
- EPA has developed Health Advisories for:
 - Microcystins: 0.3 ug/L (ppb) for children under 6 years, 1.6 ppb for children greater than 6 years of age
 - Cylindrospermopsin: 0.7 ppb for children under 6 years, 3.0 for children greater than 6 years of age
 - Some states have established HA levels for Anatoxins



Harmful Algal Blooms

- Four main cyanotoxins include:

Cyanotoxins	Acute Health Effects in Humans
Microcystin-LR	Abdominal pain, headache, sore throat, vomiting and nausea, dry cough, diarrhea, blistering around the mouth and pneumonia
Cylindrospermopsin	Fever, headache, vomiting, bloody diarrhea
Anatoxin-a group	Tingling, burning, numbness, drowsiness, incoherent speech, salivation, respiratory paralysis leading to death
Saxitoxins	Nausea and vomiting, headache, muscle weakness, respiratory failure

- Tables from EPA's website "Summary of Cyanotoxins Treatment in Drinking Water"

Harmful Algal Blooms

- Treatment-Intracellular Cyanotoxin Removal (Intact Cells):

Treatment Process	Relative Effectiveness
Pre-Treatment Oxidation	Oxidation often stresses or lyses cyanobacteria cells releasing the cyanotoxin to the water. If oxidation is required to meet other treatment objectives, consider using lower doses of an oxidant less likely to lyse cells.
Coagulation / Sedimentation / Filtration	Ensure that captured cells accumulated in sludge are removed frequently to release toxins. Ensure that sludge supernatant is not returned to the supply after sludge separation.
Membranes	Microfiltration and ultrafiltration are effective when cells are not allowed to accumulate on membranes for long periods of time. More frequent cleaning may be required during bloom event
Flotation	Flotation processes, such as Dissolved Air Flotation (DAF), are effective for removal since many of the toxin-forming cyanobacteria are buoyant.

Harmful Algal Blooms

- Treatment-Extracellular (Dissolved) Cyanotoxins Removal:

Treatment Process	Relative Effectiveness
Membranes	Depends of the type of cyanotoxin, membrane material, membrane pore size distribution, and influent water quality. Nanofiltration is generally effective in removing microcystins. Reverse osmosis is generally applicable for microcystins and cylindrospermopsin.
Potassium Permanganate	Effective for oxidizing microcystins and anatoxins. Further research for cylindrospermopsin. Not effective for saxitoxin
Free Chlorine	Effective for oxidizing microcystins as long as the pH is below 8. Effective for oxidizing cylindrospermopsin and saxitoxin. Not effective for anatoxin-a
Chlorine Dioxide	Not effective at doses typically used in drinking water treatment
Ozone	Very effective for oxidizing microcystins, anatoxin-a, and cylindrospermopsin. Not effective for saxitoxin
UV Radiation	Not effective alone. When paired with Ozone or hydrogen peroxide effective at oxidizing anatoxin, cylindrospermopsin, and microcystins

Harmful Algal Blooms

- Extracellular Treatment Cont'd

Treatment Process	Relative Effectiveness
Activated Carbon Adsorption – Powdered Activated Carbon (PAC)	Effectiveness of PAC adsorption varies based on type of carbon, pore size, type of cyanotoxin, and other water quality parameters such as Natural Organic Matter (NOM) concentration. Wood-based PAC are generally most effective for microcystins. More research needed for other cyanotoxins, but promising results.
Activated Carbon Adsorption-Granular Activated Carbon (GAC)	Also varies based on type of carbon, pore size, type of cyanotoxin, and other water quality parameters such as NOM. Effective for microcystins and likely effective for three other cyanotoxins. Condition of the carbon is a factor

Harmful Algal Blooms

- What can water systems do now?
 - Be aware of possible algal blooms in source
 - Notify the Division of any taste and odor issues associated with a possible algal bloom in source water
 - Division is developing a HAB Response Plan
 - Sample to get background data, MIB & Geosmin
- Start looking at development of a harmful algal bloom response plan
 - Several states already have a plan in place for recreational and drinking water levels
- <https://www.epa.gov/cyanohabs>



This Photo by Unknown Author is licensed under [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/)

Standard Specifications - Engineering

- Approval expires after 5 years
 - Check approval date on the data viewer
- If both water and sewer are included, submit to drinking water
- If used for a specific project, the standard specifications must include everything in the project and be current
- If details are included in the standard specification, they do not need to be included on the project drawings

- Three engineering workshops planned for later this month.
 - Jackson, TN March 20, Knoxville, TN March 21, Fleming Training Center March 28

- DWR.Engineering@tn.gov
 - Engineering
 - Plans review
 - Approval extension requests

Emergency Response - Drought

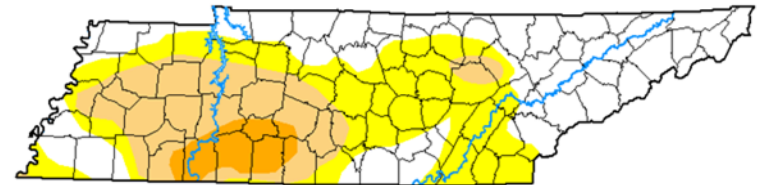
- Drought Management Plans updated every three years or within 6 months of implementing any portion of the plan
- Need to notify the local field office of any implementation of conservation measures
 - Don't wait to implement or contact the Division
- TEMA has developed a drought and wildfire task force



March 7, 2023



November 14, 2023



March 7, 2024

Emergency Response

- Winter Storm January 16 – 24, 2024
- Multiple systems impacted by weather and increase in water demand from customers letting their faucets drip
- Boil Water Advisories
 - Highest single day of systems on a boil water advisory: 32
 - Day with the most advisories issued: January 18 (18)
- Survey sent out from TAUD about impacts to systems



This Photo by Unknown Author is licensed under [CC](#)

[BY-SA-NC](#)

Emergency Response

- Emergency Operations Plan is required to be updated and submitted every three years
- Make sure it reflects what resources you have available at the water system and an up-to-date contact list
 - Think about how you would respond, could you respond
 - Do you provide water to another system? Are they involved in your emergency planning?
- Work with your local Emergency Management Agency contact, get to know them
 - They can be a benefit when your resources run out
- Funding opportunities may be available for mitigation of disasters or improving resiliency

Emergency Response

- TN Water / Wastewater Agency Response Network (TN WARN)
- <http://www.tnwarn.org/>
- Voluntary membership for both water and wastewater systems
- Mutual Aid Agreement between water systems to assist in emergency response and share resources
- Follows National Incident Management System (NIMS)
- Another good tool to add to EOP / Emergency Response Plan

Emergency Response

- EPA's Water Contaminant Information Tool (WCIT)
- <https://www.epa.gov/waterdata/water-contaminant-information-tool-wcit>
- Comprehensive information about contaminants that may be introduced via natural disaster, vandalism, accident, or act of terrorism
 - Over 800 contaminants included, some with only laboratory analysis
 - More than 200 analytical methods
- Access is password protected
 - Utilizes CDX (NetDMR) for signing up and gaining access.
- Great tool to add to your EOP / Emergency Response Plan

Sanitary Surveys and

- Sanitary Survey Audits
 - Follow-up to ensure inspectors are looking at all areas of the survey process
 - Will not re-set sanitary survey score, but may result in some corrective actions if necessary
- EPA Audits
 - Conducting about 6-8 inspections, looking at completing surveys of half the water systems
 - Make sure plans are up to date, records are available
 - View customer agreement for lead and copper sampling as a chain of custody
 - Have issued enforcement orders based on their inspections

Sanitary Surveys and

- Maintenance of system
- Increasing focus on maintenance items that could negatively impact water quality or quantity
 - Overloaded sed basins/tube settlers, not having duplicate disinfection
 - Redundant deficiencies under the survey manual
- Asset Management Plans (AMP)
 - America Water Infrastructure Act of 2018 required states to incorporate AMP
 - Will incorporate into Capacity Development
 - Jackson, MS and TN Board of Utility Regulation (TBOUR)
 - Used in America Rescue Plan (ARP) as part of scoring and information available on the TN ARP Resources website:
 - <https://www.tn.gov/environment/arp/resources.html>
-

Sanitary Surveys and ...

- Disinfection By-products
 - Stage 2 Monitoring Plans
 - Periodically update them with current sampling schedule
 - Stage 3 potentially in play for 2027
 - Tank cleaning and inspections likely part of the changes
 - Entry point sampling for parent / consecutive systems?
 - Possible evaluation of source water



This Photo by Unknown Author is licensed under [CC BY-SA-NC](#)



Sanitary Surveys and

- Water mains repaired under pressure
 - 0400-45-01-.17(8) mainly focuses on de-watered mains and the potential for contamination
 - AWWA Standard C651-14 Section 4.11 does require swabbing or spraying, flushing, and sampling of chlorine residual
- Tank Inspections
 - Documentation of disinfection and bacteriological sampling on all inspections
 - Recommended to include in the tank inspection report
- Public Notice Certifications
 - Copy of Public Notice Certification needs to be submitted to Division along with copy of notice
 - Includes notices provided in CCR
 - Working on getting form approved and posted on-line

Miscellaneous

- Inspector Training
 - On-site shadowing of operators
- Move to Davy Crockett Building
 - Move slated for April / May

Davy Crockett Tower, 9th Floor
500 James Robertson Parkway
Nashville, Tennessee 37243-1204

Area Wide Optimization Program (AWOP)

- Establishes treatment *goals* for water systems to meet to improve water quality and create a buffer with MCLs
 - Does not reset Federal drinking water standards
 - Mainly focuses on community water systems with surface water source
- Two options for the program
 - Follow the goals as a water system and improve water quality
 - Adopt the goals, make a commitment, to implement the goals and complete spreadsheets annually to document achievement and receive a certificate for the calendar year
 - First UD of Knox County & South Blount UD

Area Wide Optimization Program (AWOP)

- Three categories: Microbial, DBPs in WTP, Distribution System
- Microbial
 - Combined Filter Effluent & Individual Filters ≤ 0.10 NTU in 95% of samples
 - Minimize individual filter effluent turbidity during filter backwash and return filter to service at ≤ 0.10 NTU
 - Meet Contact Time requirements, plus system specific factor of safety
- DBPs in WTP
 - Sample entry point quarterly / monthly, goal of 30% - 50% of the long-term goal (~20-30 ppb for THM, 15-20 for HAA)
 - Monitor TOC monthly, achieve 1.1 ratio (better to achieve 1.3 mg/L in finished water)
- Distribution System
 - DBPs LRAAs not to exceed 70 ppb THM / 50 ppb HAA, long term goal of LRAA average of 60 ppb THM / 40 ppb HAA
 - Tanks: Turnover less than 5 days, mixing performance ratio greater than 1.0
 - Free chlorine residual ≥ 0.20 mg/L at all monitoring sites (dead-end, low use, DBP sites, tanks during discharge, master meters with consecutive systems)



Questions?

Erich Webber

Drinking Water Fellow

865-364-9502

erich.webber@tn.gov

