

# Drinking Water Chemical Rules

Department for Environmental Protection  
Environmental & Public Protection Cabinet



*To Protect and Enhance Kentucky's Environment*

**Kentucky**  
UNBRIDLED SPIRIT™

# Inorganic Chemicals

- Who does it apply to?
  - Community & Non-Transient Non-Community Systems
    - Surface Water sample once per year
    - Ground Water sample once per every 3 year compliance period

# Inorganic Chemical Contaminants

	Detect	MCL
Antimony	.003 mg/L	.006 mg/L
Arsenic	.002 mg/L	.01 mg/L
Barium	0.1 mg/L	2.0 mg/L
Beryllium	.0003 mg/L	.004 mg/L
Cadmium	.001 mg/L	.005 mg/L
Chromium	.007 mg/L	0.1 mg/L
Cyanide	.02 mg/L	0.2 mg/L
Fluoride	NA	4.0 mg/L
Mercury	.0002 mg/L	.002 mg/L
Nickel	.005 mg/L	NA
Selenium	.002 mg/L	.05 mg/L
Thallium	.0007 mg/L	.002 mg/L

# Inorganic Chemical compliance

- Samples must be taken at the Plant Tap (Entry Point into the Distribution system)
- System that exceeds the MCL must begin sampling quarterly and perform public notification within 30 days. SW must sample a minimum of 4 quarters, GW a minimum of 2 quarters before returning to routine monitoring
- Systems that fail to sample receive a M/R violation

# Asbestos (IOC)

- Who does it apply to?
  - Community & Non-Transient Non-Community systems
    - SW, GW and purchasers with asbestos cement pipes in their distribution must sample once during the first 3 year compliance period of each 9 year compliance cycle (2020-2022)
    - A purchase system without asbestos pipes may request a waiver

# Asbestos Compliance

- Samples must be taken at the Plant Tap or out in the distribution system at a site near an asbestos pipe
- MCL is 7 MFL, detect is .01 MFL
- System that exceeds the MCL must begin sampling quarterly and perform public notification within 30 days. For SW a minimum of 4 quarters, GW a minimum of 2 quarters
- Systems that fail to sample receive a M/R violation

# Nitrate/Nitrite (IOC)

- Who does it apply to?
  - Community, Non-Transient Non-Community & Transient Non-Community systems
    - Community and NTNC systems originally sampled 4 consecutive quarters for nitrate, this sets a high quarter for which they then sample annually.
    - Transient systems sample once per year for nitrate
    - Nitrite is sampled much like asbestos, once during the first 3 year compliance period of each 9 year compliance cycle (2020-2022)

# Nitrate/Nitrite Compliance

- Samples must be taken at the Plant Tap
- Nitrate MCL – 10 mg/L, an exceedance of that requires PN in 24 hrs. Any system that has a result of 5 mg/L or higher is required to monitor quarterly for at least a year
- Nitrite MCL – 1 mg/L, exceedance same as Nitrate. Any system that has a result of 0.5 mg/L or higher goes to quarterly monitoring



# Sodium (IOC)

- Who does it apply to?
  - Community SW and GW systems
    - SW sample twice per year
    - GW sample once per year



# Sodium Compliance

- Samples must be taken at the Plant Tap
- Sodium MCL is 20 mg/L. System that exceeds the MCL must perform public notification within 30 days
- Systems are required to submit sodium results to their local health departments
- Systems that fail to sample receive a M/R violation

# Synthetic Organic Chemicals

- Who does it apply to?
  - Community & Non-Transient Non-Community Systems
    - SW or GW systems with a population over 3300 sample twice within a year in a 3 year compliance period.
    - SW or GW systems with a population  $> 3300$  sample once per every 3 year compliance period

# Synthetic Organic Chemical contaminants

	Detect	MCL
Alachlor	.00044 mg/L	.002 mg/L
Aldicarb	.0011 mg/L	.003 mg/L
Aldicarb Sulfone	.00176 mg/L	.002 mg/L
Aldicarb Sulfoxide	.0011 mg/L	.004 mg/L
Atrazine	.00022 mg/L	.003 mg/L
Benzo(a)pyrene	.000044 mg/L	.0002 mg/L
Carbofuran	.00198 mg/L	.04 mg/L
Chlordane	.00044 mg/L	.002 mg/L
Dalapon	.0022 mg/L	0.2 mg/L
Di(2-Ethylhexyl) Adipate	.00132 mg/L	0.4 mg/L
Di(2-Ethylhexyl) Phthalate	.00132 mg/L	.006 mg/L
Dinoseb	.00044 mg/L	.007 mg/L

# Synthetic Organic Chemical contaminants

	Detect	MCL
Diquat	.00088 mg/L	.02 mg/L
Endothall	.0198 mg/L	0.1 mg/L
Endrin	.000022 mg/L	.002 mg/L
Ethylene Dibromide	.000022 mg/L	.00005 mg/L
Glyphosate	.0132 mg/L	0.7 mg/L
Heptachlor	.000088 mg/L	.0004 mg/L
Heptachlor Epoxide	.000044 mg/L	.0002 mg/L
Hexachlorobenzene	.00022 mg/L	.001 mg/L
Hexachlorocyclopentadiene	.00022 mg/L	.05 mg/L
Lindane	.000044 mg/L	.0002 mg/L
Methoxychlor	.00022 mg/L	.04 mg/L
Oxamyl	.0044 mg/L	0.2 mg/L

# Synthetic Organic Chemical Contaminants

	Detect	MCL
PCB	.00022 mg/L	.0005 mg/L
Pentachlorophenol	.000088 mg/L	.001 mg/L
Picloram	.00022 mg/L	0.5 mg/L
Simazine	.000154 mg/L	.004 mg/L
Toxaphene	.0022 mg/L	.003 mg/L
1,2 Dibromo-3-Chloropropane	.000044 mg/L	.0002 mg/L
2,4-D	.000022 mg/L	.07 mg/L
2,4,5-TP	.00044 mg/L	.05 mg/L

# SOC Compliance

- Samples must be taken at the Plant Tap (Entry Point into the Distribution system)
- System that exceeds the MCL must begin sampling quarterly and perform public notification within 30 days. Systems must sample a minimum of 4 quarters, before returning to routine monitoring after and MCL
- Any detect requires quarterly monitoring (SW requires 4 quarters, GW requires 2 quarters). System can request to go to annual monitoring for 3 years in the quarter of their highest result/detect. After 3 years can ask to return to routine monitoring.
- Systems that fail to sample receive a M/R violation

# Volatile Organic Chemicals

- Who does it apply to?
  - Community & Non-Transient Non-Community Systems
    - SW systems sample once per year
    - GW systems sample once per 3 year compliance period



# Volatile Organic Chemical contaminants

	Detect	MCL
Benzene	.0005 mg/L	.005 mg/L
Carbon Tetrachloride	.0005 mg/L	.005 mg/L
Chlorobenzene	.0005 mg/L	0.1 mg/L
Cis-1-2-Dichloroethylene	.0005 mg/L	.07 mg/L
Dichloromethane	.0005 mg/L	.005 mg/L
Ethylbenzene	.0005 mg/L	0.7 mg/L
O-Dichlorobenzene	.0005 mg/L	0.6 mg/L
P-Dichlorobenzene	.0005 mg/L	.075 mg/L
Styrene	.0005 mg/L	0.1 mg/L
Tetrachloroethylene	.0005 mg/L	.005 mg/L
Toluene	.0005 mg/L	1.0 mg/L
Trans-1,2-Dichloroethylene	.0005 mg/L	0.1 mg/L

# Volatile Organic Chemical contaminants

	Detect	MCL
Trichloroethylene	.0005 mg/L	.005 mg/L
Vinyl Chloride	.0005 mg/L	.002 mg/L
Xylenes	.0005 mg/L	10 mg/L
1,1-Dichloroethylene	.0005 mg/L	.007 mg/L
1,1,1-Trichloroethane	.0005 mg/L	0.2 mg/L
1,1,2-Trichloroethane	.0005 mg/L	.005 mg/L
1,2-Dichloroethane	.0005 mg/L	.005 mg/L
1,2-Dichloropropane	.0005 mg/L	.005 mg/L
1,2,4-Trichlorobenzene	.0005 mg/L	.07 mg/L

# VOC Compliance

- Samples must be taken at the Plant Tap (Entry Point into the Distribution system)
- System that exceeds the MCL must begin sampling quarterly and perform public notification within 30 days. Systems must sample a minimum of 4 quarters, before returning to routine monitoring after and MCL
- Any detect requires quarterly monitoring (SW requires 4 quarters, GW requires 2 quarters). System can request to go to annual monitoring for 3 years in the quarter of their highest result/detect. After 3 years can ask to return to routine monitoring.
- Systems that fail to sample receive a M/R violation

# Secondary Chemicals

- Who does it apply to?
  - Community, Non-Transient Non-Community & Transient Non-Community
  - Purchase systems are exempt
    - Sampled once a year

# Secondary contaminants

## MCL

Aluminum	.05 to 0.2 mg/L
Chloride	250 mg/L
Copper	1.0 mg/L
Fluoride	2.0 mg/L
Iron	0.3 mg/L
Manganese	.05 mg/L
Silver	0.1 mg/L
Sulfate	250 mg/L
Zinc	5 mg/L
Color	15 Color Units
Odor	3 TON
pH	6.5 to 8.5
Total Dissolved Solids	500 mg/L
Foaming agents/surfactants	0.5 mg/L

# Secondary compliance

- Samples must be taken at the Plant Tap (Entry Point into the Distribution system)
- Systems that exceed the MCL, take a confirmation sample. If the results remain high a treatment change recommendation may be made to the water system. There is not an MCL violation for secondaries.
- Systems that fail to sample receive a M/R violation

# Radionuclides

- Who does it apply to?
  - Community SW and GW systems
    - Sampling occurs once per 3 years, once per 6 years or once per 9 years. This is determined by the system's previous results



# Radiological Contaminants

	Detect	MCL
Gross Alpha Particle	3 pCi/L	15 pCi/L
Radium-226	1 pCi/L	see below
Radium-228	1 pCi/L	see below
Uranium	1ug/L	30 ug/L

Radium MCL is 5.0 pCi/L but that is the combined pCi/L of both the 226 and 228



# Radiological Compliance

- Samples must be taken at the Plant Tap (Entry Point into the Distribution system)
- If only Gross Alpha and Radium-228 are sampled then Gross Alpha can substitute for the Radium-226 and the Uranium. (Trust me it's a weird substitution and unless you're me you don't need to know nor probably want to know)
- Compliance is run annually due to the variability of schedules.
- MCL violations require 4 quarters of monitoring of all 4 contaminants and a true MCL is determined by a running annual average of those results.
- Systems that fail to sample receive and M/R violation

# Unregulated Chemicals

- Systems are chosen by EPA, results are sent directly to EPA
- EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants suspected to be present in drinking water, but that do not have health-based standards set under the Safe Drinking Water Act (SDWA).
- UCMR 3 ended in 2015 contained PFOA, PFOS and Chromium-6 sampling.
- UCMR 4 sampling to occur between 2018-2020

**Questions?**  
**todd.ritter@ky.gov**  
**(502)-782-7050**