

3745-81-24

Organic chemical monitoring requirements.

Monitoring requirements for organic chemical contaminants of drinking water are stated in this rule. Analytical procedures which are acceptable for monitoring for organic contaminants in drinking water are listed in rule 3745-81-27 of the Administrative Code. Analyses under this rule shall only be conducted by laboratories that are certified for these analyses under Chapter 3745-89 of the Administrative Code. Community public water systems and nontransient noncommunity public water systems shall monitor for organic chemicals according to a schedule provided by the director.

(A) Monitoring for volatile organic chemicals with maximum contaminant levels (MCLs) listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code shall be conducted by community public water systems and nontransient noncommunity public water systems as follows:

- (1) Groundwater systems shall monitor with a minimum of one sample at each respective sampling point during each compliance period. Surface water systems shall monitor with a minimum of one sample annually at each sampling point. After the first set of samples, each repeat sample shall be taken at the same sampling point as used before unless conditions make another sampling point more representative of a source, treatment plant, or part of the distribution system.
- (2) If a public water system draws water from more than one source and the sources are combined before distribution, the public water system shall monitor at each sampling point during periods of normal operating conditions and shall keep a record of and report the sources providing water for each sample. When a sample does not contain water from all the sources which serve the sampling point, the public water system shall prepare and follow a schedule such that the next monitoring sample at this sampling point for the same volatile organic chemicals will include water from sources not included in the previous sample or samples. Thus, successive samples from the same sampling point for the same volatile organic chemicals shall sample water supplied from different sources until all the sources supplying that sampling point have been monitored.
- (3) Each new community and new nontransient noncommunity public water system and public water systems that use a new source of water shall monitor initially with four consecutive quarterly samples for each contaminant listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code beginning in the first quarter of the next calendar year after operation of the new source of system begins. New public water systems shall sample at each sampling point; systems with a new source of water shall sample at the sampling point related to the new source.

- (4) If the initial monitoring for the contaminants listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code has been completed and the public water system did not detect any contaminant listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code, then the public water system shall monitor with one sample annually. For any contaminant detected during the initial monitoring, the public water system shall continue quarterly monitoring until eligible for a reduction under paragraph (A)(6)(b) of this rule.
- (5) The director may, after a minimum of three years of annual monitoring with no detection of any contaminant listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code, reduce monitoring by a groundwater system to one sample during each compliance period.
- (6) If a contaminant listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code is detected at a level exceeding 0.0005 milligram per liter in any sample, then:
- (a) The public water system shall monitor quarterly at each sampling point which resulted in a detection. If a public water system is monitoring annually or less frequently for a previously detected contaminant, then the public water system does not have to return to quarterly monitoring for that contaminant unless the sample result exceeds eighty per cent of the MCL.
 - (b) The director may decrease the quarterly monitoring requirement specified in paragraph (A)(6)(a) of this rule to annual monitoring provided the director has determined that the public water system does not exceed eighty per cent of the MCL for that contaminant. In no case shall the director make this determination unless a groundwater system has monitored with a minimum of two consecutive quarterly samples and a surface water system has monitored with a minimum of four consecutive quarterly samples.
 - (c) Public water systems which monitor annually for a previously detected contaminant shall monitor during the ~~quarter(s)~~quarters which previously yielded the highest analytical result.
- (7) The director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the director, the result shall be averaged with the first sampling result and the average used for the compliance determination as specified by paragraph (A)(8) of this rule.

- (8) Compliance with paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code shall be determined based on the analytical results obtained at each sampling point.
- (a) For public water systems which are conducting monitoring at a frequency greater than annually, compliance is determined by a running annual average of all samples taken at each sampling point. If the running annual average of any sampling point is greater than the MCL, then the public water system is out of compliance. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. If, however, the initial sample or a subsequent sample would cause the running annual average to exceed the MCL, then the public water system is out of compliance immediately. Any samples below the detection limit shall be counted as zero for purposes of determining the running annual average.
 - (b) For public water systems monitoring annually or less frequently, when the average of a result and a required confirmation sample exceeds eighty per cent of the MCL, the public water system shall begin quarterly monitoring at that sample point. If a confirmation sample was not collected, the public water system shall begin quarterly monitoring if the level of the initial sample exceeds eighty per cent of the MCL. Compliance with a MCL will be determined by a running annual average as stated in paragraph (A)(8)(a) of this rule. If one sampling point is in violation of the MCL, the system is in violation of the MCL.
 - (c) If a public water system fails to collect the required number of samples, compliance will be based on the total number of samples collected.
- (9) Analysis for the contaminants listed in paragraph ~~(D)~~(C) of rule 3745-81-12 of the Administrative Code shall be conducted using the methods in rule 3745-81-27 of the Administrative Code.
- (10) Analysis under this rule shall only be conducted by laboratories that are approved under Chapter 3745-89 of the Administrative Code.
- (11) The director has discretion to delete results of obvious sampling or analytical errors.
- (12) The director may increase required monitoring where necessary to detect variations within the public water system.

- (13) Each approved laboratory shall determine the method detection limit (MDL), as defined in the appendix to rule 3745-89-03 of the Administrative Code, at which it is capable of detecting volatile organic chemicals. The acceptable MDL is 0.0005 milligram per liter. This concentration is the detection concentration for purposes of this rule.
- (B) Monitoring of the organic chemical contaminants with maximum contaminant levels listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code shall be conducted by community public water systems and nontransient noncommunity public water systems as ~~described below~~follows:
- (1) Groundwater systems and surface water systems shall monitor with a minimum of one sample at each sampling point each time monitoring is required in paragraph (B) of this rule. After the initial set of samples, each sample shall be taken at the same sampling point as used before unless conditions make another sampling point more representative of a source or treatment plant.
 - (2) If the public water system draws water from more than one source and the sources are combined before distribution, the public water system shall monitor at each sampling point during periods of normal operating conditions and shall keep a record of and report the sources providing water for each sample. When a sample does not contain water from all the sources which serve the sampling point, a schedule prepared by the public water system shall be followed so that the next monitoring sample at this sampling point for the same organic ~~chemical(s)~~chemicals will include water from sources not included in the previous sample or samples. Thus, successive samples from the same sampling point for the same organic ~~chemical(s)~~chemicals shall sample water supplied from different sources until all the sources supplying that sampling point have been monitored.
 - (3) Monitoring frequency:
 - (a) Each community public water system and nontransient noncommunity public water system shall monitor with four consecutive quarterly samples at each sampling point for each organic chemical contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code during each compliance period.
 - (b) Public water systems serving more than three thousand three hundred persons which do not detect a contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code in their first compliance period may reduce the sampling frequency to a minimum of two quarterly samples in one year during each following compliance period.

- (c) Public water systems serving fewer than three thousand three hundred one persons which do not detect a contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code in their first compliance period may reduce the sampling frequency to a minimum of one sample during each following compliance period.
 - (d) Public water systems that use a new source of water and new public water systems shall begin initial quarterly monitoring for each contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code in a quarter designated by the director during the next calendar year after operation of the new source or system begins. New public water systems shall sample at each sampling point. Public water systems with a new source of water shall sample at the sampling point related to the new source.
- (4) The director may grant a waiver from one or more requirements of paragraphs (B)(3)(a) to (B)(3)(c) of this rule. Each waiver is valid for only one compliance period.
- (5) The director may grant a waiver after evaluating the previous use (including transport, storage, or disposal) of a contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code within the watershed or zone of influence of the public water system. If a determination by the director reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If the contaminant has been used previously or if ~~its~~the previous use is unknown, then the following factors shall be used to determine whether a waiver is granted:-
- (a) Previous analytical results.
 - (b) The proximity of the public water system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, homes and gardens, and other land application uses.
 - (c) The environmental persistence and transport of the organic chemicals listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code.

- (d) How completely the water source is protected against contamination due to such factors as the depth of the well, the type of soil, and the integrity of the well casing.
 - (e) Elevated nitrate levels at the public water system source.
 - (f) Use of polychlorinated biphenyls in equipment used in the production, storage, or distribution of water (e.g., polychlorinated biphenyls used in pumps, transformers, etc.).
- (6) If an organic chemical contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code is detected (as defined by paragraph (B)(14) of this rule) in any sample, then:
- (a) Each public water system shall monitor quarterly at each sampling point which resulted in a detection. If a public water system is monitoring annually or less frequently for a previously detected contaminant, then the public water system does not have to return to quarterly monitoring unless the sample result exceeds eighty per cent of the MCL.
 - (b) The director may decrease the quarterly monitoring requirement specified in paragraph (B)(6)(a) of this rule to annual monitoring provided the director has determined that the public water system does not exceed eighty per cent of the MCL. In no case shall the director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.
 - (c) Public water systems which monitor annually shall monitor during the quarter that previously yielded the highest analytical result.
 - (d) For public water systems which have three consecutive annual samples with no detection of a contaminant listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code, the director may grant a waiver as specified in paragraph (B)(4) of this rule.
 - (e) If monitoring results in detection of one or more of certain related contaminants (heptachlor, heptachlor epoxide), then subsequent monitoring shall analyze for all related contaminants.
- (7) The director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the director, the result shall be averaged with the first monitoring result and the average used for the compliance determination as specified by paragraph (B)(8) of this rule.

- (8) Compliance with paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code shall be determined based on the analytical results obtained at each sampling point, as follows:
- (a) For public water systems which are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point. The system will not be considered in violation of the MCL until it has completed one year of quarterly monitoring. If, however, the initial result or a subsequent result would cause the running annual average to exceed the MCL, then the public water system is out of compliance immediately. If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected. If one sampling point is in violation of the MCL, the system is in violation of the MCL. Any results below the detection limit shall be calculated as zero for purposes of determining the running annual average.
 - (b) For public water systems monitoring annually or less frequently, when the average of a result and a confirmation sample exceeds eighty per cent of the MCL the public water system shall begin quarterly monitoring at that sample point. If a confirmation sample was not collected, the public water system shall begin quarterly monitoring if the level of the initial sample exceeds eighty percent of the MCL. Compliance with the MCL will then be determined by a running annual average as stated in paragraph (B)(8)(a) of this rule.
- (9) Analysis for the organic chemical contaminants listed in paragraph ~~(E)~~(D) of rule 3745-81-12 of the Administrative Code shall be conducted by using methods set forth in rule 3745-81-27 of the Administrative Code.
- (10) Analysis for polychlorinated biphenyls shall be conducted as follows:
- (a) Each public water system which monitors for polychlorinated biphenyls shall analyze or have analyzed each sample using a technique set forth in rule 3745-81-27 of the Administrative Code.
 - (b) If polychlorinated biphenyls (as one of seven aroclors) are detected (as designated in this paragraph) in any sample analyzed using a technique set forth in rule 3745-81-27 of the Administrative Code, the sample shall be reanalyzed using a technique set forth in rule 3745-81-27 of the Administrative Code to quantitate polychlorinated biphenyls (as decachlorobiphenyl).

- (c) Compliance with the MCL for polychlorinated biphenyls shall be determined based upon the quantitative results of analyses using a technique set forth in rule 3745-81-27 of the Administrative Code.

Aroclor	Detection limit (Milligrams per liter)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

- (11) The director has discretion to delete results of obvious sampling or analytical errors.
- (12) The director may increase the required monitoring frequency, where necessary, to detect variations within the public water system (e.g., fluctuations in concentration due to seasonal use, changes in water source).
- (13) Each public water system shall monitor at the time designated by the director within each compliance period.
- (14) Detection as used in this rule shall be defined as greater than or equal to the following concentration for each contaminant.

Contaminant	Detection limit (Milligrams per liter)
Alachlor	0.0002
Atrazine	0.0001
Benzo(A)pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002

Dalapon	0.001
1,2-Dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl) adipate	0.0006
Di(2-ethylhexyl) phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
2,4-d	0.0001
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Pentachlorophenol	0.00004
Picloram	0.0001
Pentachlorophenol	0.00004
Polychlorinated biphenyls (PCBs) (As decachlorobiphenyl)	0.0001
Simazine	0.00007

Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.000000005
2,4,5-TP (silvex)	0.0002

(C) Monitoring for total trihalomethanes (TTHM) and haloacetic acids five (HAA5).

- (1) Community public water systems and nontransient noncommunity public water systems that treat their water with any combination of primary or residual disinfectant, other than ultraviolet light, or delivers water that has been treated with any combination of primary or residual disinfectant, other than ultraviolet light, shall monitor for TTHM and HAA5 according to paragraph (C) of this rule. The director will determine compliance with MCLs for TTHMs and HAA5.
- (2) For public water systems required to conduct quarterly monitoring, compliance with MCLs for TTHMs and HAA5 shall be based on a locational running annual arithmetic average at each monitoring location, calculated quarterly, at the end of the fourth calendar quarter following the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). For public water systems monitoring quarterly, if the system fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four quarter compliance period ~~must~~shall be based on the average of the available data from the most recent four quarters.
- (3) If the public water system is required to conduct monitoring at a frequency that is less than quarterly, compliance with MCLs shall be based on the LRAA calculations beginning with the first compliance sample taken after the compliance date. If any sample result exceeds the MCL, the public water system ~~must~~shall comply with the requirements of paragraphs (C)(18) to (C)(20) of this rule. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.
- (4) If a public water system takes more than one sample per quarter at a monitoring location, the average of all samples taken in the quarter at that location ~~must~~shall be used to determine a quarterly average to be used in the LRAA calculation.
- (5) If the public water system fails to monitor according to the sample monitoring plan, the system will be in violation for the entire period covered by the

locational running annual average. Public water systems shall take all samples during normal operating conditions.

- (6) Routine monitoring for TTHMs and HAA5: Public water systems are required to begin monitoring at the locations and the time period identified in the sample monitoring plan developed under paragraph (C)(9) of this rule. Public water systems specified in paragraph (C)(1) of this rule shall monitor at the frequency indicated and at no fewer than the number of locations identified in the following table:

Source water type	Population size category	Monitoring frequency ¹	Sample Type ²	Distribution system monitoring location total per monitoring period ²
Surface water	<500	Per year	Individual samples	2
	500-3,300	Every 90 days	Individual samples	2
Surface water	3,301-9,999	Every 90 days	Dual sample set	2
	10,000-49,999	Every 90 days	Dual sample set	4
Surface water	50,000- 249,999	Every 90 days	Dual sample set	8
	250,000-999,999	Every 90 days	Dual sample set	12
Surface water	1,000,000-4,999,999	Every 90 days	Dual sample set	16
	> or = 5,000,000	Every 90 days	Dual sample set	20
Ground water	<500	Per year	Individual samples	2
	500-9,999	Per year	Dual sample set	2
Ground water	10,000-99,999	Every 90 days	Dual sample set	4

	100,000-499,999	Every 90 days	Dual sample set	6
Ground water	> or = 5,000,000	Every 90 days	Dual sample set	8
¹ All systems must <u>shall</u> monitor during month of highest DBP concentrations.				
² Systems on quarterly monitoring must <u>shall</u> take dual sample sets every 90 days at each monitoring location except for surface water systems serving 500-3,300. Ground water systems serving 500-9,999 on annual monitoring must <u>shall</u> take dual sample sets at each monitoring location. All other systems on annual monitoring and surface water systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For systems serving fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location and month.				

- (7) Systems on quarterly monitoring are required to monitor every ninety days. The ninety day monitoring frequency may be extended or reduced by five days to allow for unplanned circumstances that prevent monitoring precisely ninety days apart, as long as the samples are collected during each calendar quarter.
- (8)) If a system that does not disinfect begins using a disinfectant other than UV light, the system ~~must~~shall consult with the director to identify compliance monitoring locations and develop a monitoring plan under paragraph (C)(9) of this rule that includes those monitoring locations.
- (9) Each public water system required to monitor for TTHM and HAA5 shall develop and implement a sample monitoring plan. The public water system shall maintain the plan and make it available for inspection by the director and the general public. The monitoring plan ~~must~~shall contain the following elements: monitoring locations (including both a location address and sample monitoring point code); monitoring dates; and alternate monitoring locations (in the event access to a primary location is not available). The director will determine compliance with MCLs for TTHMs and HAA5.
- (10) Monitoring locations ~~must~~shall be chosen by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. Public water systems ~~must~~shall also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If a public water system has more monitoring locations than required for compliance monitoring according

to paragraph (C) of this rule, systems ~~must~~shall identify which locations will be used for compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified.

- (11) All surface water systems ~~must~~shall submit a copy of the monitoring plan to the director. The director may require new community and non-transient noncommunity water systems that treat their water with any combination of primary or residual disinfectant, other than ultraviolet light, or deliver water that has been treated with any combination of primary or residual disinfectant, other than ultraviolet light to develop and submit a sample monitoring plan within twelve months of becoming active.
- (12) A public water system may revise the monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for director approved reasons, after consultation with the director regarding the need for changes and the appropriateness of changes. If a system changes monitoring locations, the locations ~~must~~shall replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The director may also require modifications in the monitoring plan. Surface water systems ~~must~~shall submit a copy of the modified monitoring plan to the director prior to the date required to comply with the revised monitoring plan.
- (13) Reduced monitoring for TTHMs and HAA5: Public water systems may reduce monitoring to the level specified in the following table any time the LRAA is less than or equal to 0.040 mg/L for TTHM and less than or equal to 0.030 mg/L for HAA5 at all monitoring locations. Systems may only use data collected under the provisions of paragraph (C) of this rule to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, ~~must~~shall be less than or equal to 4.0 mg/L at each treatment plant treating surface water, based on monitoring conducted under rule 3745-81-77 of the Administrative Code.

Source water type	Population size category	Monitoring frequency ¹	Distribution system monitoring location total per monitoring period
Surface Water:	<500	NA	Monitoring may not be reduced

	500-3,300	Per year	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
Surface Water:	3,301-9,999	Per year	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	10,000-49,999	Every 90 days	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs.
Surface Water:	50,000-249,999	Every 90 days	4 dual sample sets-at the locations with the two highest TTHM and two highest HAA5 LRAAs.
	250,000-999,999	Every 90 days	6 dual sample sets-at the locations with the three highest TTHM and three highest HAA5 LRAAs.
Surface Water:	1,000,000-4,999,999	Every 90 days	8 dual sample sets-at the locations with the four highest TTHM and four highest HAA5 LRAAs.
	> or = 5,000,000	Every 90 days	10 dual sample sets-at the locations with the five highest TTHM and five highest HAA5 LRAAs.
Ground Water	<500	Every third year	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	500-9,999	Per year	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location

			and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
Ground Water	10,000-99,999	Per year	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	100,000-499,999	Every 90 days	2 dual sample sets; at the locations with the highest TTHM and highest HAA5 LRAAs.
Ground Water	> or = 5,000,000	Every 90 days	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs.
¹ Systems on quarterly monitoring must <u>shall</u> take dual sample sets every 90 days.			

- (14) Public water systems may remain on reduced monitoring as long as the TTHM LRAA is less than or equal to 0.040 mg/L and the HAA5 LRAA is less than or equal to 0.030 mg/L at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample is less than or equal to 0.060 mg/L and each HAA5 sample is less than or equal to 0.045 mg/L (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, ~~must~~shall be less than or equal to 4.0 mg/L at each treatment plant treating surface water, based on monitoring conducted under rule 3745-81-77 of the Administrative Code.
- (15) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, greater than 4.0 mg/L at any treatment plant treating surface water, the system ~~must~~shall resume routine monitoring under paragraph (C)(6) of this rule or begin increased monitoring if paragraph (C)(18) of this rule applies.
- (16) The director may return a public water system to routine monitoring at the director's discretion, for reasons including but not limited to: treatment change, significant distribution changes, or disinfectant changes.

- (17) Consecutive systems that do not add a disinfectant but deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light, ~~must~~shall comply with analytical, monitoring, and compliance requirements for chlorine and chloramines in rules 3745-81-27 and 3745-81-70 of the Administrative Code and report monitoring results under paragraph (G)(4) of rule 3745-81-75 of the Administrative Code.
- (18) If a public water system is required to monitor at a particular location annually or less frequently than annually under paragraph (C)(6) or (C)(13) of this rule, the system ~~must~~shall increase monitoring to dual sample sets once per quarter (taken every ninety days) at all locations if a TTHM sample is greater than 0.080 mg/L or a HAA5 sample is greater than 0.060 mg/L at any location.
- (19) A public water system is in violation of the MCL when the LRAA exceeds the MCLs in rule 3745-81-12 of the Administrative Code, calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the system fails to complete four consecutive quarters of monitoring, or if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). The system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the system fails to monitor.
- (20) Public water systems may return to routine monitoring once increased monitoring has been conducted for at least four consecutive quarters and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5.
- (21) Operational evaluation levels: A public water system has exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by four to determine an average, exceeds 0.080 mg/L, or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by four to determine an average, exceeds 0.060 mg/L.
- (a) If a public water system exceeds the operational evaluation level, the system ~~must~~shall conduct an operational evaluation and submit a written report of the evaluation to the director no later than ninety days after being notified by the director of the analytical result that causes the system to exceed the operational evaluation level. The written report ~~must~~shall be made available to the public upon request.

- (b) The public water ~~system's~~system's operational evaluation ~~must~~shall include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and ~~what steps could be considered~~actions the PWS will take and when these actions will be implemented to minimize future ~~exceedences~~exceedances. If the system exceeding the OEL is a consecutive water system, a master meter monitoring location shall be submitted to the director for approval at each master meter, or as close as possible, supplying water to each monitoring location that exceeds the OEL.
 - (c) A public water system may request and the director may allow the system to limit the scope of the evaluation if the system is able to identify the cause of the operational evaluation level exceedance.
 - (d) A request from the system to limit the scope of the evaluation does not extend the schedule in paragraph (C)(21)(a) of this rule for submitting the written report. The director ~~must~~shall approve this limited scope of evaluation in writing and the system ~~must~~shall keep that approval with the completed report.
- (22) If a consecutive water system exceeds the operational evaluation level or the TTHM LRAA or HAA5 LRAA is in exceedance of the MCL for two quarters within a twelve month period and the current individual compliance monitoring period's results are greater than the TTHM or HAA5 MCL, the following apply:
- (a) Beginning the quarter following the second OEL or MCL exceedance, the consecutive water system shall monitor quarterly for disinfection byproducts at the mater meter monitoring locations acceptable to the director. The master meter monitoring shall be conducted with routine TTHM and HAA5 compliance monitoring. The mater meter monitoring shall be conducted for a miniumum of four consecutive quaters unless otherwise specified by the director.
 - (b) If any master meter monitoring results collected by the consecutive water system pursuant to paragraph (C)(22)(a) of this rule are greater than the TTHM or HAA5 MCL, beginning the next calendar quarter the wholesale system delivering water to the consecutive water system shall begin quarterly monitoring at or near the respective master meter monitoring locations for a minimum of four consecutive quarters unless otherwise specified by the director. The wholesaler's master meter monitoring

locations shall be submitted to the director for approval. The wholesaler shall conduct monitoring at the master meter monitoring locations concurrently with the consecutive water system in accordance with a schedule determined by the director. If a master meter location is the same location for both the consecutive and wholesale system, and the wholesale system and consecutive system agree to sample from this master meter location to comply with this rule, both systems may jointly request that the Director approve the agreed upon master meter location.

- (c) If the consecutive waster system or wholesale system has a sample result at any master meter monitoring location greater than the TTHM or HAA5 MCL, after the first quarter of wholesaler monitoring, an OEL resport shall be completed by the consecutive water system and the wholesale system. The OEL reports shall be completed and submitted to the director in accordance with paragraph (C)(21) of this rule on a form accpetable to the director. An OEL report shall be completed and submitted for each quarter when the individual quarterly sample result at the master meter monitoring locations is greater than the TTHM or HAA5 MCL.
- (d) Master meter monitoring locations determined to have an LRAA that exceeds either the TTHM or HAA5 MCL shall become additional compliance monitoing locations for the wholesale system and be subject to paragraph (C) of this rule unless otherwise specified by the director. Upon directors approval, the wholesale system may replace a current monitoring location with a master meter location if the current monitoring location has not exceeded the OEL or had an LRAA exceed an MCL for a time period determined by the director as appropriate.
- (e) Public water systems required to monitor at master meter locations under this rule may reduce or stop monitoring upon directors approval at these locations if the issue causing the elevated concentrations of DBPs has been resolved and monitoring results at these locations are consistently below the MCL.
- (f) The director may require additional public water systems involved with the conveyance of water to a consecutive public water system to comply with the requirements of this rule.

Effective: 1/1/2021

Five Year Review (FYR) Dates: 7/28/2020 and 01/01/2026

CERTIFIED ELECTRONICALLY

Certification

11/12/2020

Date

Promulgated Under: 119.03

Statutory Authority: 6109.04

Rule Amplifies: 6109.04

Prior Effective Dates: 12/27/1978, 08/24/1981, 03/29/1988, 05/22/1989,
09/13/1993, 01/01/2002, 01/01/2003, 08/01/2005,
01/01/2010, 02/23/2015