3745-81-23 **Inorganic chemical monitoring requirements.**

All public water systems shall monitor as described in paragraphs (B) and (C) of this rule to determine compliance with the maximum contaminant levels (MCLs) for nitrate and nitrite. In addition, all community water systems and all nontransient noncommunity water systems shall monitor as described in paragraphs (D) and (E) of this rule for the inorganic contaminants with MCLs listed in paragraph (B) of rule 3745-81-11 of the Administrative Code. Public water systems shall monitor inorganic chemicals according to a schedule provided by the director.

(A) Monitoring for inorganic chemicals with MCLs shall be conducted as follows.

(1) Groundwater systems and surface water systems shall monitor with a minimum of one sample at each sampling point. After the initial set of samples, the system shall take each repeat sample at the same sampling point as used before unless conditions make another sampling point more representative of a source or treatment plant.

(2) If a public water system draws water from more than one source and the sources are combined before distribution, the 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 inorganic chemical(s) will include water from sources not included in the previous sample or samples. Thus, successive samples from the same sampling point for the same inorganic chemical(s) shall sample water supplied from different sources until all of the sources supplying that sampling point have been monitored. Note that when inorganic chemicals have different monitoring periods, they require separate monitoring schedules.

(3) The frequency of monitoring for nitrate shall be according to paragraph (B) of this rule; the frequency of monitoring for nitrite shall be conducted according to paragraph (C) of this rule; the frequency of monitoring for asbestos shall be conducted according to paragraph (D) of this rule; and the frequency of monitoring for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium shall be according to paragraph (E) of this rule. The frequency of monitoring for bromate shall be conducted according to paragraph (L) of this rule. The frequency of monitoring for chlorite shall be conducted according to paragraph (M) of this rule.

(B) All public water systems shall monitor to determine compliance with the MCL for nitrate in rule 3745-81-11 of the Administrative Code.

(1) All public water systems which are groundwater systems shall monitor for nitrate annually.

(2) All public water systems which are surface water systems shall monitor for nitrate monthly.

(3) The repeat monitoring frequency for nitrate for public groundwater systems shall be quarterly for at least one year following any one sample in which the concentration is at least fifty per cent of the MCL. The director may reduce the monitoring frequency of a groundwater system to annually after four consecutive quarterly samples are less than eighty per cent of the MCL. If a groundwater system consistently operates less than four quarters per year, then the director may reduce the monitoring frequency to annually after samples collected during each of the system's operating quarters are less than eighty per cent of the MCL.

(4) After the initial round of quarterly repeat monitoring for nitrate is completed, each groundwater system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(C) All public water systems shall monitor to determine compliance with the maximum contaminant level for nitrite in rule 3745-81-11 of the Administrative Code.

(1) All public water systems shall monitor initially for nitrite with one sample at each sampling point.

(2) After the initial sample, public water systems where an analytical result for nitrite is less than fifty per cent of the MCL shall monitor at the frequency specified by the director.

(3) The repeat monitoring frequency for nitrite for public water systems shall be quarterly for at least one year following any one sample in which the concentration is at least fifty per cent of the MCL. The director may reduce the monitoring frequency to annually after a determination that the nitrite concentration for a public water system is less than eighty per cent of the MCL. If a groundwater system consistently operates less than four quarters per year, then the director may reduce the monitoring frequency to annually after samples collected during each of the public water system's operating quarters are less than eighty per cent of the MCL.

(4) After the initial round of quarterly repeat monitoring for nitrite is completed,

each public water system which is monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

(D) The frequency of monitoring conducted by community water systems and nontransient noncommunity water systems to determine compliance with the MCL for asbestos specified in rule 3745-81-11 of the Administrative Code shall be as follows:

(1) Each community and nontransient ~~noncummunity~~noncommunity water system shall monitor for asbestos during the first three-year compliance period for each nine-year compliance cycle, except when a waiver is granted.

(2) A public water system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(3) A public water system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provisions of paragraph (A) of this rule.

(4) A public water system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(5) A public water system which exceeds eighty per cent of the MCL for asbestos as determined in paragraph (H) of this rule shall monitor quarterly beginning in the next quarter after the violation occurred.

(6) The director may decrease the quarterly monitoring requirement for asbestos to the frequency specified in paragraph (D)(1) of this rule provided the director has determined that the asbestos concentration for a public water system does not exceed eighty per cent of the MCL. In no case can the director make this determination unless a groundwater system takes a minimum of two quarterly samples or a surface water system takes a minimum of four quarterly samples.

(E) The frequency of monitoring conducted by community water systems and nontransient noncommunity water systems for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and

thallium to determine compliance with the MCLs in rule 3745-81-11 of the Administrative Code shall be as follows:

(1) Ground water systems shall take and analyze one sample at each sampling point during each compliance period. Surface water systems shall take and analyze one sample annually at each sampling point.

~~(2) Monitoring to determine initial compliance with the arsenic MCL of 0.010 mg/L, effective January 1, 2006, shall be as follows:~~

~~(a) Community and nontransient noncommunity public water systems scheduled by the director to monitor for arsenic in 2005 which detect arsenic shall collect an additional sample for arsenic analysis after December 31, 2005 as scheduled by the director, and in no case later than December 31, 2007 for groundwater systems, or December 31, 2006 for surface water systems, in order to demonstrate compliance with the MCL for arsenic. Community and nontransient noncommunity public water systems scheduled by the director to monitor for arsenic in 2005 which detect arsenic above 0.008 mg/L shall collect a sample for arsenic analysis quarterly in 2006.~~

~~(b)~~(2) Arsenic sampling results shall be reported to the nearest 0.001 mg/L.

(3) The director may grant a waiver from the monitoring frequencies specified in paragraph (E)(1) of this rule for all of the contaminants listed in paragraph (E) of this rule except fluoride; no waivers shall be granted for fluoride. Waivers for cyanide monitoring may be granted only when the director determines that the public water system is not vulnerable due to any industrial source of cyanide.

~~(3) The director may grant a waiver from the monitoring frequencies specified in paragraph (E)(1) of this rule for all of the contaminants listed in paragraph (E) of this rule except fluoride; no waivers shall be granted for fluoride. Waivers for cyanide monitoring may be granted only when the director determines that the public water system is not vulnerable due to any industrial source of cyanide.~~

(4) Waivers granted under this rule shall require that the public water system monitor with at least one sample while the waiver is in effect. The term during which a waiver is in effect shall not exceed one compliance cycle (i.e., nine years).

(5) Waivers may be granted under this rule only to surface water systems which have monitored annually for at least three years and to groundwater systems

which have conducted at least three rounds of monitoring, with at least one monitoring using samples taken after January 1, 1990. Both surface and groundwater systems shall demonstrate that all previous analytical results were less than the MCLs. New public water systems that use a new water source are not eligible for a waiver until three rounds of monitoring of water from the new source have been completed.

(6) In determining the appropriate reduced monitoring frequency, the director shall consider:

(a) Reported concentrations from all previous monitoring;

(b) The degree of variation in reported concentrations; and

(c) Other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics.

(7) A decision by the director to grant a waiver shall be made in writing and shall set forth the basis for the determination. The director shall review, and, where appropriate, revise ~~his~~the director's determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency become available.

(8) A public water system, which exceeds eighty per cent of a MCL as calculated in paragraph (H) of this rule, shall monitor quarterly for that contaminant beginning in the next quarter after the result was reported.

(9) A public water system that uses a new source of water ~~after January 1, 2004, or a public water system that~~or begins operation ~~after January 1, 2004,~~ shall monitor initially for each contaminant listed in paragraph (E) of this rule in the first quarter of the next calendar year after operation of the new source or public water system begins. New public water systems shall sample at each sampling point. Existing public water systems with a new source of water shall sample at the sampling point related to the new source.

(10) If, during the initial sampling required in paragraph (E)(9) of this rule, the analytical result for any inorganic contaminant does not exceed eighty per cent of the MCL in rule 3745-81-11 of the Administrative Code, then the public water system shall monitor for that inorganic contaminant according to

the frequency specified in paragraph (E)(1) of this rule, or at a frequency determined by the director.

(11) If, during the initial sampling required in paragraph (E)(9) of this rule, any contaminant is reported as a concentration above eighty per cent of the MCLs listed in rule 3745-81-11 of the Administrative Code, at any sampling point, the public water system shall monitor quarterly for that contaminant at that sampling point beginning in the next quarter after the result is reported.

(12) The director may ~~decease~~decrease the quarterly monitoring requirement for one or more inorganic contaminants to the frequency specified in paragraph (E)(1) of this rule, or to a frequency determined by the director, provided the director has determined that the system does not exceed eighty per cent of the MCL. In no case may 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. The director may also require additional data demonstrating consistency of treatment performance.

(13) Monitoring for arsenic at nontransient noncommunity public water systems which have installed approved point-of-use or point-of-entry treatment devices for arsenic removal in accordance with rule 3745-81-19 of the Administrative Code shall be conducted at sampling point(s) specified in a monitoring plan approval by the director and in accordance with a schedule provided by the director.

(F) Confirmation samples:

(1) Where nitrate or nitrite monitoring indicates an exceedance of the MCL, the director may require the public water system to monitor with a confirmation sample within twenty-four hours of the public water system's receipt of notification of the analytical results of the first sample. Public water systems unable to comply with the twenty-four hour sampling requirement shall immediately notify the consumers in the area served by the public water system in accordance with rule 3745-81-32 of the Administrative Code. Public water systems giving immediate notification shall monitor with a confirmation sample within two weeks of notification of the analytical results of the first sample.

(2) Where the results of monitoring for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium indicate an exceedance of a MCL, the director may require that a confirmation sample be collected at the same sampling point as soon as

possible (but not to exceed two weeks) after notification of the initial monitoring result.

(3) With confirmation samples required under paragraphs (F)(1) and (F)(2) of this rule, the results of analysis of the initial and confirmation samples shall be averaged. The resulting average shall be used to determine the water system's compliance in accordance with paragraph (H) of this rule.

(4) If a public water system fails to collect the number of samples required in paragraph (F) of this rule, compliance (average concentration) will be based on the total number of samples collected.

(G) The director may require more frequent monitoring than specified in paragraphs (B), (C), (D), and (E) of this rule or may require confirmation samples for positive and negative results at ~~his~~the director's discretion. The director has discretion to delete results of obvious sampling or analytical errors.

(H) Compliance with rule 3745-81-11 if the Administrative Code shall be determined based on the analytical result(s) obtained at each sampling point.

(1) Compliance with the MCLs for nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs. If the levels of nitrate and/or nitrite exceed the MCLs in the initial sample, and a confirmation sample is required in accordance with paragraph (F)(1) of this rule, compliance shall be determined based on the average of the initial and confirmation samples. Failure to take a confirmation sample will result in an MCL violation based on the level of the initial sample.

(2) For public water systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium is determined by a running annual average at each sampling point. The public water system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. If, however, any one sample result would cause the running annual average to exceed the MCL, then the public water system is out of compliance immediately. If one sampling point is in violation of the MCL, the system is in violation of the MCL. If a public water system fails to collect the required number of samples, compliance with the MCL (average concentration) will be based on the total number of samples collected. Any sample result below the following method detection limit (MDL) shall be calculated as zero for the purpose of determining the running annual average.

~~(2)~~(3) ~~For public water systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium is determined by a running annual average at each sampling point. The public water system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. If, however, any one sample result would cause the running annual average to exceed the MCL, then the public water system is out of compliance immediately. If one sampling point is in violation of the MCL, the system is in violation of the MCL. If a public water system fails to collect the required number of samples, compliance with the MCL (average concentration) will be based on the total number of samples collected. Any sample result below the following method detection limit (MDL) shall be calculated as zero for the purpose of determining the running annual average.~~Method detection limits for inorganic contaminants.

Method Detection Limits for Inorganic Contaminants			
Contaminant	Analytical Method Type	Analytical Method Number(s) [1]	Method Detection Limit (Milligram/Liter)
Antimony	AA, furnace	3113 B	0.003
	AA, platform	200.9	0.0008[7]
	AA, gaseous hydride	D-3697-92	0.001
	ICP-MS	200.8	0.0004
Arsenic	AA, furnace	3113 B	0.001
	AA, platform stabilized temp	200.9	0.0005[2]
	AA, gaseous hydride	3114 B	0.001
	ICP-MS	200.8	0.0014[3]
Asbestos	~~Transition~~ Transmission electron microscopy	100.1	0.01 MFL[4]

Barium	AA, furnace	3113 B	0.002
	AA, direct aspiration	3111 D	0.1
	ICP	200.7, 3120 B	0.002 (0.001)
	ICP-MS	200.8	0.0008
Beryllium	AA, furnace	3113 B	0.0002
	AA, platform	200.9	0.00002[7]
	ICP	200.7, 3120 B	0.0003
	ICP-MS	200.8	0.0003
Cadmium	AA, furnace	3113 B	0.0001
	ICP	200.7	0.001
	ICP-MS	200.8	0.0005
Chromium	AA, furnace	3113 B	0.001
	ICP	200.7, 3120 B	0.007 (0.001)
	ICP-MS	200.8	0.0009
Cyanide	Distillation spectrophotometric[5]	4500-CN E	0.02
	Distillation, amenable, spectrophotometric[6]	4500-CN G	0.02
	Distillation, automated, spectrophotometric[5]	335.4	0.005
	UV, distillation, spectrophotometric[8]	Kelada-01	0.0005
Fluoride	Ion chromatography	300.0, 300.1, 4110 B, 4110 B-00	0.5
	Manual electrode	4500-F-C	0.5

	Automated electrode	Technicon 380-75 WE	0.5
Mercury	Manual cold vapor	245.1, 3112 B	0.0002
	Automated cold vapor	245.2	0.0002
Nickel	AA, furnace	3113	0.001
	AA, platform	200.9	0.0006[7]
	ICP	200.7[9], 3120 B	0.005
	ICP-MS	200.8	0.0005
Nitrate	Ion chromatography	300.0, 300.1, 4110 B, 4110 B-00, Waters B-1011	0.01
	Automated cadmium reduction	353.2, 4500-NO3-F, 4500-NO3-F-00	0.05
	Ion selective electrode	4500-NO3-D, 4500-NO3-D-00	0.25
	Manual cadmium reduction	4500-NO3-E, 4500-NO3-E-00	0.01
Nitrite	Ion chromatography	300.0, 300.1, 4110 B, 4110 B-00, Waters B-1011	0.004
	Automated cadmium reduction	353.2, 4500-NO3-F, 4500-NO3-F-00	0.05
	Spectrophotometric	4500-NO2-B, 4500-NO2-B-00	0.01
	Manual cadmium reduction	4500-NO3-E, 4500-NO3-E-00	0.01
Selenium	AA, furnace	3113 B	0.002
	AA, gaseous hydride	3114 B	0.002
	ICP-MS	200.8	0.0079

Thallium	AA, platform	200.9	0.0007[7]
	ICP-MS	200.8	0.0003

[1] Analytical method numbers, names, and references are identified in paragraph (A) of rule 3745-81-27 of the Administrative Code. Type labels include AA for atomic absorption, ICP for inductively coupled plasma, and MS for mass spectrometry.

[2] ~~The MDL reported for EMSL94 method 200.9 (May 1994) was determined using a two times concentration step during sample digestion. The MDL determined for samples analyzed using direct analyses (i.e. no sample digestion) will be higher.~~ Using multiple depositions, EMSL94 method 200.9 is capable of obtaining a MDL of 0.0001 mg/L. Because MDLs reported in EPA Method 200.9 was determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. Using multiple depositions, EPA 200.9 is capable of obtaining MDL of 0.0001 mg/L.

[3] Using selective ion monitoring, EMSL94 method 200.8 (May 1994) is capable of obtaining a MDL of ~~0.00001~~0.0001 mg/L.

[4] MFL means "million fibers longer than ten micrometers per liter of water".

[5] Screening method for total cyanides.

[6] Measures "free" cyanides.

[7] Lower MDLs are reported using stabilized temperature graphite furnace atomic adsorption.

[8] Measures total cyanides when UV-digestor is used, and "free" cyanides when UV-digestor is bypassed.

[9] Using a 2X preconcentration setp as noted in Method 200.7. Lower MDLs may be achieved when using a 4X preconcentration.

~~(3)~~(4)

(a) For public water systems which are monitoring annually, or less frequently, for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium, when the average of a sample collected pursuant to paragraph (E) of this rule and a confirmation sample exceeds eighty per cent of the MCL, the public water system shall begin quarterly sampling at that

sampling point. If a confirmation sample was not collected the public water system shall begin quarterly monitoring based on the level of the initial sample.

(b) If a public water system is monitoring annually, or less frequently, for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium because of a reduction from quarterly monitoring granted by the director pursuant to paragraph (E)(12) of this rule, the public water system is not required to return to quarterly monitoring unless the sample result exceeds the MCL.

(I) Each public water system shall monitor at the time designated by the director during each compliance period.

(J) Sample collection for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this rule shall be conducted using the sample preservation, container, and maximum holding time procedures specified in the following table:

Contaminant	Preservative[1]	Container [2]	Time[3]
Antimony	HNO_3 to pH <2	P or G	6 months
Arsenic	HNO_3 to pH <2	P or G	6 months
Asbestos	Cool, 4°c	P or G	48 hours[4]
Barium	HNO_3 to pH <2	P or G	6 months
Beryllium	HNO_3 to pH <2	P or G	6 months
Cadmium	HNO_3 to pH <2	P or G	6 months
Chromium	HNO_3 to pH <2	P or G	6 months
Cyanide	Cool, 4°c, NaOH to pH >12[3]	P or G	14 days
Fluoride	None	P or G	1 month~~6~~[5]
Mercury	HNO_3 to pH <2	P or G	28 days
Nickel	HNO_3 to pH <2	P or G	6 months
Nitrate	Cool, 4°c	P or G	48 hours~~45~~[6]
Nitrate/nitrite~~6~~[7]	H_2SO_4 to pH <2	P or G	28 days

Nitrite	Cool, 4°c	P or G	48 hours
Selenium	HNO_3 to pH <2	P or G	6 months
Thallium	HNO_3 to pH <2	P or G	6 months

[1] For cyanide determinations samples must be adjusted with sodium hydroxide to pH 12 at the time of collection. When chilling is indicated the samples must be shipped and stored at four degrees Celsius or less. Acidification of nitrate or metals samples may be with a concentrated acid or a dilute (fifty per cent by volume) solution of the applicable concentrated acid. Acidification of samples for metals analysis is encouraged and allowed at the laboratory rather than at the time of sampling provided the shipping time and other instructions in Section 8.3 of EMSL94 Methods 200.7, 200.8, or 200.9 (May 1994) are followed. EMSL94 methods 200.7, 200.8, and 200.9 are specified in paragraph (A) of rule 3745-81-27 of the Administrative Code.

[2] P means plastic, hard or soft; G means glass.

[3] In all cases, samples should be analyzed as soon after collection as possible. Follow any additional information on preservation, containers, or holding times specified in the method.

[4] Instructions for containers, preservation, procedures, and holding time as specified in "Technical Notes" Method 100.2 (October 1994) must be adhered to for all compliance analyses including those conducted with "Technical Notes" Method 100.1 (October 1994). "Technical Notes" methods 100.1 and 100.2 are specified in paragraph (A) of rule 3745-81-27 of the Administrative Code.

[5] This is the maximum holding time for analytical purposes. For public water systems that add fluoride to the water supply, a shorter sample turnaround time is required in accordance with rule 3745-83-01 of the Administrative Code for operational purposes.

~~5~~[6] If the sample is chlorinated, the holding time for an unacidified sample kept at four degrees Celsius or less may be extended to fourteen days.

~~6~~[7] Nitrate-Nitrite refers to a measurement of total nitrate.

(K) Analyses conducted to determine compliance with rule 3745-81-11 of the Administrative Code shall be performed in accordance with methods listed in paragraph (A) of rule 3745-81-27 of the Administrative Code and shall be performed in laboratories approved in accordance with Chapter 3745-89 of the Administrative Code.

(L) All community and nontransient noncommunity public water systems that treat their water with ozone shall monitor to determine compliance with the maximum contaminant level for bromate in rule 3745-81-11 of the Administrative Code.

~~(1) Surface water public water systems serving ten thousand or more persons shall comply with paragraph (L) of this rule beginning January 1, 2002. Surface water public water systems serving less than ten thousand persons and ground water systems shall comply with paragraph (L) of this rule beginning January 1, 2004.~~

~~(2)~~(1) Each public water system required to monitor for bromate shall develop and implement a monitoring plan. This plan shall be maintained and made available for inspection by the director and the general public ~~no later than thirty days following the applicable compliance dates in paragraph (L)(1) of this rule~~. All public water systems using surface water as a source and serving more than three thousand three hundred people shall submit a copy of the monitoring plan to the director no later than the date of the first report required under rule 3745-81-75 of the Administrative Code. The director may also require any other public water system to submit such a plan. After review, the director may require changes in any plan elements. The public water system shall modify the plan as required by the director. The plan shall include at least the specific locations and schedules for collecting samples for bromate, and how the public water system will calculate compliance with the MCL for bromate. If a public water system is approved for monitoring as a consecutive system, or provides water to a consecutive system, under the provisions of rule 3745-81-29 of the Administrative Code, its sampling plan must reflect the entire distribution system. Failure to monitor according to the monitoring plan is a monitoring violation.

~~(3)~~(2) Public water systems shall take all bromate samples during normal operating conditions.

(3) Routine monitoring for bromate shall be one sample per month for each treatment plant in the system using ozone. The sample shall be taken at the entrance to the distribution system while the ozonation system is operating under normal conditions.

~~(4) Routine monitoring for bromate shall be one sample per month for each treatment plant in the system using ozone. The sample shall be taken at the entrance to the distribution system while the ozonation system is operating under normal conditions.~~

~~(5)~~(4) Public water systems may use data collected under the provisions of this rule to qualify for reduced monitoring. Public water systems may use another data

set to qualify for reduced monitoring, provided it has been approved by the director.

~~(6)~~(5) Reduced monitoring: ~~public water systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/l, based upon representative monthly bromide measurements for one year. The public water system must continue bromide monitoring to remain on reduced bromate monitoring. The public water system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/l based upon representative monthly measurements. If the running annual average source water bromide concentration is equal to or greater than 0.05 mg/l, the public water system shall resume routine monitoring required by paragraph (L)(4) of this rule.~~A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is less than or equal to 0.0025 mg/L based on monthly bromate measurements under paragraph (L)(3) of this rule for the most recent four quarters, with samples analyzed in accordance with methods listed in paragraph (A) of rule 3745-81-27 of the Administrative Code. If a system has qualified for reduced bromate monitoring under this paragraph prior to April 1, 2009, that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L based on samples analyzed in accordance with methods listed in paragraph (A) of rule 3745-81-27 of the Administrative Code. If the running annual average bromate concentration is greater than 0.0025 mg/L, the system must resume routine monitoring required by paragraph (L)(3) of this rule.

~~(7)~~(6) Compliance with the MCL for bromate shall be based on a running annual arithmetic average, computed quarterly, of monthly samples. For months in which the public water system takes more than one sample, the average of all samples taken during the month shall be used to compute the monthly average. These samples shall be collected as prescribed by paragraphs (L)~~(4)~~(3) and (L)~~(6)~~(5) of this rule.

~~(8)~~(7) If the average of samples covering any consecutive four-quarter period exceeds the MCL, the public water system is in violation of the MCL and must notify the public according to rule 3745-81-32 of the Administrative Code. Public notification is in addition to reporting to the director according to rule 3745-81-75 of the Administrative Code.

~~(9)~~(8) All samples taken and analyzed under the provisions of paragraphs (L)~~(4)~~(3) and (L)~~(6)~~(5) of this rule shall be included in determining compliance, even if

that number is greater than the minimum required.

~~(10)~~(9) If, during the first year of monitoring under paragraph (L)~~(4)~~(3) or (L)~~(6)~~(5) of this rule, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the public water system is in violation at the end of that quarter.

~~(11)~~(10) Failure to complete the required monitoring is a monitoring violation. The public water system will be in violation for the entire period covered by the running annual average. If a public water system fails to complete twelve consecutive months of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(M) All community and nontransient noncommunity public water systems that treat their water with chlorine dioxide shall monitor to determine compliance with the maximum contaminant level for chlorite in rule 3745-81-11 of the Administrative Code.

~~(1) Surface water public water systems serving ten thousand or more persons shall comply with paragraph (M) of this rule beginning January 1, 2002. Surface water public water systems serving less than ten thousand persons and ground water systems shall comply with paragraph (M) of this rule beginning January 1, 2004.~~

~~(2)~~(1) Each public water system required to monitor for chlorite shall develop and implement a monitoring plan. This plan shall be maintained and made available for inspection by the director and the general public ~~no later than thirty days following the applicable compliance dates in paragraph (M)(1) of this rule~~. All public water systems using surface water as a source and serving more than three thousand three hundred people shall submit a copy of the monitoring plan to the director no later than the date of the first report required under rule 3745-81-75 of the Administrative Code. The director may also require any other public water system to submit such a plan. After review, the director may require changes in any plan elements. The public water systems shall modify the plan as required by the director. The plan shall include at least the specific locations and schedules for collecting samples for chlorite, and how the public water system will calculate compliance with the MCL for chlorite. If a public water system is approved for monitoring as a consecutive system, or provides water to a consecutive system, under the provisions of rule 3745-81-29 of the Administrative Code, their sampling plan must reflect the entire distribution system. Failure to monitor according to the monitoring plan is a monitoring violation.

~~(3)~~(2) Public water systems shall take all chlorite samples during normal operating conditions.

~~(4)~~(3) Routine daily monitoring: public water systems shall take daily chlorite samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system shall take additional samples in the distribution system the following day at the locations required by paragraph (M)~~(6)~~(5) of this rule, in addition to the sample required at the entrance to the distribution system.

~~(5)~~(4) Routine monthly monitoring: public water systems shall take a three-sample set each month in the distribution system. The system shall take one sample for chlorite at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time of the water in the distribution system. Any additional distribution system sampling shall be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under paragraph (M)~~(6)~~(5) of this rule to meet the requirement for monitoring in this paragraph.

~~(6)~~(5) Additional monitoring: on each day following a daily sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the public water system is required to take three samples for chlorite in the distribution system. Samples shall be taken at the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system.

~~(7)~~(6) Chlorite monitoring at the entrance to the distribution system required by paragraph (M)~~(4)~~(3) of this rule may not be reduced.

~~(8)~~(7) Public water systems may use data collected under the provisions of this rule to qualify for reduced chlorite monitoring in the distribution system. Public water systems may use another data set to qualify for reduced distribution system monitoring, provided it has been approved by the director.

~~(9)~~(8) Chlorite monitoring in the distribution system required by paragraph (M)~~(5)~~(4) of this rule may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under paragraph (M)~~(5)~~(4) of this rule has exceeded the chlorite MCL and the system has not been required to conduct monitoring under paragraph (M)~~(6)~~(5) of this rule.

~~(10)~~(9) The public water system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under paragraph (M)~~(5)~~(8) of this rule exceeds the chlorite MCL or the system is required to conduct monitoring under paragraph (M)~~(6)~~(5) of this rule, at which time the system must revert to routine monitoring.

(10) Compliance with the MCL for chlorite shall be based on an arithmetic average of each three-sample set taken in the distribution system as prescribed by paragraphs (M)(4) and (M)(5) of this rule. All samples taken and analyzed under the provisions of paragraphs (M)(4) and (M)(5) of this rule shall be included in determining compliance, even if that number is greater than the minimum required. If the arithmetic average of any three-sample set exceeds the MCL, the system is in violation of the MCL and must notify the public according to rule 3745-81-32 of the Administrative Code, in addition to reporting to the director according to rule 3745-81-75 of the Administrative Code.

~~(11) Compliance with the MCL for chlorite shall be based on an arithmetic average of each three-sample set taken in the distribution system as prescribed by paragraphs (M)(5) and (M)(6) of this rule. All samples taken and analyzed under the provisions of paragraphs (M)(5) and (M)(6) of this rule shall be included in determining compliance, even if that number is greater than the minimum required. If the arithmetic average of any three-sample set exceeds the MCL, the system is in violation of the MCL and must notify the public according to rule 3745-81-32 of the Administrative Code, in addition to reporting to the director according to rule 3745-81-75 of the Administrative Code.~~

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Certification

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