Ohio Environmental Protection Agency

Division of Drinking and Ground Waters

Instructions for Submitting Water Plant/Distribution System Monthly Operating Reports

The purpose of this document is to provide guidance to public water systems (PWSs) in the submittal of the Water Plant/Distribution System monthly operating report (MOR).

Operational monitoring reported on the Water Plant/Distribution System MOR is required for all community systems and those non-community systems that:

- Are required to maintain a chlorine residual in their distribution system for disinfection purposes
- Add phosphate (polyphosphate, orthophosphate, or ortho/poly blends)
- Adjust pH for approved corrosion control or for stability
- Adjust alkalinity for approved corrosion control
- Provide precipitative softening
- Apply a copper compound to their surface water supply or provide copper-silver ionization
- Treat for a primary maximum contaminant level or MCL (arsenic, nitrate, etc.); surrogate monitoring will most likely be required

The specific operational monitoring to be performed and reported on the Water Plant/Distribution System MOR is identified in Ohio Administrative Code (OAC) 3745-83-01. Community and non-transient non-community water systems that treat water with disinfectants are also required to monitor for inorganic disinfection byproducts and disinfection residuals per OAC 3745-81-23(L) and (M) and 3745-81-70(E) and (F). Additional operational monitoring may be required to assess operational performance. Per 3745-83-01(G), public water systems may have been notified of additional monitoring in writing or through plan approval.

The monitoring requirements are summarized in the Water Plant/Distribution System MOR Monitoring Requirements table at the end of this document. Analyses beyond those identified in this table may be necessary for good operational control.

All analyses are to be conducted in accordance with the methods specified in OAC 3745-81-27. Specific analyses that must be performed in a laboratory certified in accordance with OAC 3745-89 are identified in OAC 3745-83-01(B). Public water systems with certified laboratories must perform quality control requirements for all methods which they are certified as required by the Laboratory Certification Section. For all other public water systems that utilize diethyl-p-phenylene diamine (DPD) chlorine test kits, it is recommended that the calibration of the DPD chlorine test kits be verified at least annually (verifying calibration indicates that it has been tested against a known sample and not that it has been sent back to the manufacturer for a formal calibration).

OAC 3745-83-01(I) requires those public water systems affected by the above-mentioned rules to submit a report for each month of operation. Submission of Ohio EPA Form Water Plant/Distribution System MOR and/or Surface Water Treatment Plant MOR will satisfy this reporting requirement. The report must be submitted

electronically via a method acceptable to the director no later than the 10th day of the month following the reporting month.

An example of the Water Plant/Distribution System MOR is shown below. You may ctrl+click on the different sections and it will direct you to the relevant section of the procedure.

Ohio Environmental Protection Agency

Water Plant/Distribution System Monthly Operating Report (MOR)

PWS ID*:	
Facility ID*:	
Reporting Lab Cert. #:	1
Rpt. Month / Year *:	

Version:	2.0.4
Last Updated	February 22, 2024
NOTE: Begin entering data in row 15	
* - Indicates Required Field	

Generate XML

Fluoride Compound Applied:	H,I,J
FL QC Check Sample Date:	
FL QC Check Sample (Pass/Fail):	

FL Plant Tap Highest Value:	F,G
Date of Highest Value:	

Iron/Manganese QC Laboratory Check Data			
Iron Date:	R2	Mn Date:	S2
Iron (mg/L):		Mn (mg/L):	

		Fluoride Reporting				Plant Tap / Entry Point									
			Plant Lab Analysis				Alkalinity								
Date *	Plant Production (MGD)	Calculated Fluoride Dosage (mg/L)	Raw (mg/L)	Plant Tap (mg/L)	Distribution (mg/L)	pH	Phenol (mg/L)	Total (mg/L)	Stability (mg/L)	Hardness (mg/L)	Phosphorus as Total P (mg/L)	Ortho-phosphate as PO_4 (mg/L)	Iron (mg/L)	Manganese (mg/L)	Copper (mg/L)
	A	B	C	D	E	K	L	M	N	O	P	Q	R1	S1	T
Min.															
Max.															
Avg.															
Total															

Ohio Environmental Protection Agency

Water Plant/Distribution System Monthly Operating Report (MOR)

Chlorine QOR Data Chlorine Residual (Total)	
No. of RT & RP Samples	Avg. Value (mg/L)
AA	BB

						Distribution											
						Lowest		Chlorite / Chlorine Dioxide (mg/L)									
								Chemical		Type		FIRST CUSTOMER (FC)			Residence Time in Distribution		
Chlorine Dioxide (mg/L)	Exceed	Chlorite (mg/L)	Exceed	Chlorine Residual (Free) (mg/L)	Chlorine Residual (Combined) (mg/L)	Chlorine Residual (Free) (mg/L)	Chlorine Residual (Combined) (mg/L)	Chlorite	ClO_2	Routine	Followup	-0-hrs	+ 6 hrs	+ 12 hrs	Avg (AT)	Max (AT)	Comments
U		V		W	X	Y	Z	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL

Water Plant/Distribution System MOR Submittal Instructions

1. Laboratory Information
   - For the reporting period, enter the month and year.
   - Enter the Reporting Lab ID name and number
     - If both a commercial lab and the WTP lab are utilized, the commercial lab name and number should be provided in the header and the WTP lab (or additional commercial lab) name and number should be provided in the comments section.
     - If a chlorine test kit is being used and it is the only analysis being performed, lab number 8000 should be entered.
     - If an iron/manganese test kit is being used, the name and number of the lab that performs the monthly iron/manganese split sample analysis should be provided.

2. Analytical Information
   - Any analytical results that are below the detection limit should be reported at the detection limit (<0.1 would be reported as 0.1). **DO NOT REPORT 0s ON THE MOR FOR ANALYTICAL ANALYSES.**
   - Report the data to the accuracy requested in these instructions. If rounding is necessary then round up if the digit to be truncated is '5' or greater (for example, if the data is to be reported to one decimal place, 1.24 becomes 1.2; 1.25 becomes 1.3).

   (a) Plant Production
   - Enter the daily quantity of water produced in millions of gallons per day, up to four decimal places (report in MGD even for low production; a production of 1,500 gallons/day would be reported as 0.0015 MGD).
   - On days when no water is produced, a zero should be reported.
   - Water systems which purchase water should report their daily water use if that information is available; otherwise, report an estimate of the daily water use based upon monthly or quarterly master meter readings.

   (b) Calculated Fluoride Dosage
   - Reporting of the calculated fluoride dosage is not specifically required by OAC 3745-83-01(F); however, OAC 3745-82-04(B)(3) requires that this information be recorded daily (i.e., record on bench sheets).
   - If reported, report the calculated fluoride dosage to two decimal places.
   - Calculate using finished water metered supplies.

   Formulae to determine fluoride dosage:

   For Sodium Fluoride (NaF): $\frac{\text{Gallons saturated solution} \times 0.018}{\text{MGD water treated}}$ = mg/L fluoride

   For Sodium Silicofluoride (Na_2SiF_6): $\frac{\text{lbs. } Na_2SiF_6}{\text{MGD water treated} \times 13.95}$ = mg/L fluoride

   For Hydrofluorosilicic Acid (H_2SiF_6): $\frac{\text{lbs. } H_2SiF_6 \text{ used} \times \% \ H_2SiF_6 \text{ (from supplier)}}{\text{MGD water treated} \times 10.56}$ = mg/L fluoride

   (c) Fluoride – Raw

- Report the fluoride content of the water prior to the application of such, to two decimal places.
- If more than one sample is collected in any one day from the same source, then report the average.

(d) Fluoride – Plant Tap (Entry Point)
- Report to two decimal places.
- If more than one sample is collected in any one day, the average should be reported. If any sample is outside of the 0.8 - 1.3 mg/L range, this should be reported in the comment section.

(e) Fluoride – Distribution
Reporting the fluoride level in the distribution system is not required by OAC 3745-83-01; however, if it is reported on the MOR, follow these guidelines:
- Report to two decimal places.
- If more than one sample is collected in any one day, report the highest.

(f) Highest Fluoride Result of the Month
- Report the highest fluoride result collected at the plant tap to two decimal places.

(g) Date of the Highest Fluoride Result of the Month
- Report the date of highest fluoride result collected at the plant tap.

(h) Fluoride Compound Applied
Identify which of the following fluoride compounds is utilized:
- Sodium Fluoride – NaF
- Sodium Silicofluoride - Na_2SiF_6
- Hydrofluorosilicic Acid - H_2SiF_6.

(i) Fluoride Quality Control Check Sample Date
- Report the date on which the fluoride quality control check sample was performed.

(j) Fluoride Quality Control Check Sample (P/F)
- Report the result of the fluoride quality control check sample as Pass (P) or Fail (F).

Additional Fluoride Information:

In accordance with OAC 3745-82-04(B)(2), public water systems that add fluoride shall maintain a range of 0.8 – 1.3 mg/L in the finished water (plant tap/entry point) and shall notify Ohio EPA within 48 hours of any instance in which the daily average fluoride concentration is greater than 1.3 mg/L. If a public water system has four or more days during the month in which the daily average fluoride concentration is outside a range of 0.7 mg/L to 1.3 mg/L, the public water system is in violation unless the system has approval to perform a tracer study and the fluoride level in the distribution system does not exceed 2.0 mg/L. Otherwise, compliance shall be determined monthly at each entry point, based on the average of all daily samples collected.

In accordance with OAC 3745-82-04(B)(4), public water systems that lose their capability to accurately determine the fluoride content of their finished water due to laboratory equipment failure or malfunction, shall cease feeding all fluoride compounds and notify the Ohio EPA within 48 hours and provide a tentative schedule for re-establishing laboratory capabilities.

In accordance with OAC 3745-82-04(B)(5), public water systems that lose their capability to feed fluoride shall notify Ohio EPA within 48 hours and provide a tentative schedule for resumption of acceptable fluoridation.

In accordance with OAC 3745-82-04(B)(3), public water systems that add supplemental fluoride shall keep a daily record of the amount of fluoride compound added, the quantity of water fluoridated, the calculated fluoride dosage, and the fluoride content of the water as delivered to the customers.

In the event of an overfeed, the following recommendations from the Center for Disease Control and Prevention and Ohio EPA should be used:

Fluoride Content (mg/L), as measured at the entry point (plant tap)	**Recommended Actions**
1.4 to 2.0	1. Leave the fluoridation system on. 2. Determine malfunction and repair. 3. Notify supervisor and report the incident to the Ohio EPA and to the appropriate county health department.
2.1 to 4.0	1. Determine malfunction and immediately try to repair. 2. If the problem is not found and corrected quickly, turn off the fluoridation system. 3. Notify supervisor and report the incident to the Ohio EPA and to the appropriate county health department. 4. If fluoridation system was turned off then determine malfunction, repair and restart.
4.1 to 10.0	1. Determine malfunction and immediately try to repair. 2. If the problem is not found and corrected quickly, turn off the fluoridation system. 3. Notify supervisor and report the incident to the Ohio EPA and to the appropriate county health department. 4. Take water samples at several points in the distribution system and test the fluoride content. Flush and retest if results are high. 5. Determine malfunction and repair. Then, with supervisor's permission and Ohio EPA's permission restart the fluoridation system.
10.1 or higher	1. Turn off the fluoridation system immediately. 2. Notify supervisor and report the incident to the Ohio EPA and to the appropriate county health department. 3. Issue a no use advisory to the public.** 4. Take water samples at several points in the distribution system and test the fluoride content. Flush and retest if results are high. 5. Determine malfunction and repair. Then, with supervisor permission and Ohio EPA's permission, restart the fluoridation system. 6. Notify the public once the problem has been fixed.

** Compliance with the fluoride MCL and SMCL is determined based on a running annual average of the daily plant tap results. Under most circumstances, one or two days of fluoride over the SMCL or MCL will not cause the annual average to exceed either standard, and does not pose an immediate or long-term threat to public health. The no use advisory at 10.1 mg/L or higher is a precautionary measure recommended by the CDC for those rare overfeed events that result in fluoride concentrations greater than 10 mg/L.

Water Quality Parameters

Water quality parameter (WQP) compliance is defined in OAC 3745-81-82(G). More than 9 excursions in a monitoring period is a violation for systems designated with optimal water quality parameters. Each day in between sampling events is considered a separate excursion.

(k) pH (Entry Point)

- Report to one decimal place.
- If more than one sample is collected in any one day, report the average.
- If pH is adjusted for an Ohio EPA approved corrosion control recommendation, entry point data should be reported on the Water Plant/Distribution System MOR. Distribution data should be submitted through the Water Quality Parameters Reporting Tool in eDWR.

(l) Alkalinity – Phenol (Entry Point)

- If more than one sample is collected in any one day, report the average to the nearest whole number.

(m) Alkalinity – Total (Entry Point)

- If more than one sample is collected in any one day, report the average unless alkalinity stability is also performed, in which case only the corresponding total alkalinity value is to be reported. Report to the nearest whole number.
- If alkalinity is adjusted for an Ohio EPA approved corrosion control recommendation, entry point data should be reported on the Water Plant/Distribution System MOR. Distribution data should be submitted through the Water Quality Parameters Reporting Tool or by the certified lab in eDWR.

(n) Alkalinity – Stability (Entry Point)

- The PWS must enter the result of the calcium carbonate stability (marble) test or the calculated pH saturation value (to one decimal place) when using Langelier's Index for calcium carbonate stability. For the marble test, this value should be the difference between the unsaturated sample's alkalinity minus the saturated sample's alkalinity.

(o) Hardness (Entry Point)

- Report total hardness as $CaCO_3$ to the nearest whole number.
- If more than one sample is collected in any one day, report the average.

(p) Phosphorus as Total P (Entry Point)

- Report if any phosphate is added to the water supply.
- Report as total phosphorus (P) to one decimal place.
- If more than one sample is collected in any one day, report the highest.

(q) Orthophosphate as PO_4 (Entry Point)

- Report as orthophosphate as PO_4 to one decimal place.
- If more than one sample is collected in any one day, report the average of all samples collected. Additionally, report the highest value in the comments section with the following notation: "Orthophosphate at entry point (high value) = _____ mg/L as PO4".
- If orthophosphate is fed for an Ohio EPA approved corrosion control recommendation, entry point data should be reported on the Water Plant/Distribution System MOR. Distribution data should be submitted through the Water Quality Parameters Reporting Tool in eDWR.

(r1) Iron (Entry Point)

- Report to one decimal place.
- If more than one sample is collected in any one day, report the highest.
- If using an in-house test kit, follow the reporting of lab information.

(r2) Iron Quality Control Laboratory Check (Split) Sample

Community PWSs with treatment to reduce iron and which elect to use a test kit must perform a split sample with an OEPA approved lab once per month. Report the lab analysis and date. The difference between the lab analysis and the corresponding test kit analysis should be no greater than 0.2 mg/L. If it is greater than 0.2 mg/L, re-instate weekly monitoring at an Ohio EPA approved lab per OAC 3745-83-01(F)(5)(c). Weekly split sampling shall continue until the deviation between the split sample results from an in-house test kit and a certified laboratory is within 0.2 mg/L.

(s1) Manganese (Entry Point)

- Report to two decimal places.
- If more than one sample is collected in any one day, the highest will be reported.
- If using an in house test kit, follow the reporting of lab information.

(s2) Manganese Quality Control Laboratory Check (Split) Sample

Community and nontransient noncommunity PWSs that add manganese as part of the treatment process or provide treatment for manganese and which elect to use a test kit must perform a split sample with an OEPA approved lab once per month. Report the lab analysis and date. The difference between the lab analysis and the corresponding test kit analysis should be no greater than 0.04 mg/L. If it is greater than 0.04 mg/L, re-instate weekly monitoring at an Ohio EPA approved lab per OAC 3745-83-01(F)(6)(c) within 72 hours. Weekly split sampling shall continue until the deviation between the split sample results from an in-house test kit and a certified laboratory is within 0.04 mg/L.

(t) Copper (Entry Point)

- Report to one decimal place.
- If more than one sample is collected on any one day, report the highest.

Note: A fact sheet is available for PWSs using copper sulfate as an algaecide (Application of Aquatic Pesticides and Algaecides to Reservoirs Used as a Public Drinking Water Supply). Water systems must submit a Notice of Intent (NOI) to Ohio EPA's Division of Surface Water when feeding an algaecide control substance.

(u) Chlorine Dioxide (Entry Point)

- Report the level of chlorine dioxide collected at the entrance to the distribution system daily to one decimal place.
- If more than one sample is collected in any one day, report the highest.

If any routine daily sample, taken at the entrance to the distribution system, exceeds the MRDL of 0.8 mg/L then place an 'x' in the adjacent "Exceed" column and take a follow-up three- sample set for chlorine dioxide in the distribution system on the following day **(proceed to instruction (cc) and (dd))**.

An **acute** MRDL violation occurs when:

Any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one or more of the three samples taken in the distribution system exceeds the MRDL, or

Failure to conduct the follow-up monitoring in the distribution system (three-sample set).

The public water system shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public according to the procedures for acute health risks in rule 3745-81-32 of the OAC.

The public water system must notify its Ohio EPA District Office within 24 hours of determining it has an acute MRDL violation.

A **non-acute** MRDL violation occurs when:

Any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL but all distribution system samples are below the MRDL, or

Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL.

The public water system shall take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and shall issue a tier 2 public notice in accordance with OAC Rule 3745-81-32(C).

(v) Chlorite (Entry Point)

- Report the level of chlorite collected at the entrance to the distribution system daily to one decimal place.
- If more than one sample is collected in any one day, report the highest.

If any routine daily sample, taken at the entrance to the distribution system, exceeds the chlorite maximum contaminant level (MCL) of 1.0 mg/L then place an 'x' in the adjacent "Exceed" column and take a follow-up, three sample set for chlorite in the distribution system on the following day **(proceed to instruction (cc)(dd)).**

Compliance with the MCL for chlorite shall be based on an arithmetic average of each three-sample set taken in the distribution system. 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 OAC.

(w), (x), (y), and (z) Chlorine Residual

A public water system that provides water treated with chlorine shall monitor for free OR combined chlorine at least once every day that water is available to the public at each entry point to the distribution system and at a representative point in the distribution system.

- Non-community ground water systems that utilize chlorine solely for the oxidation of iron, manganese, or hydrogen sulfide and are not required to maintain a chlorine residual in the distribution system, do not have to perform this monitoring. Please note if iron is being monitored as a surrogate for arsenic removal the PWS must report chlorine residuals to ensure adequate arsenic removal.

- Non-community ground water systems that consist of a single building only need to collect one representative sample daily from distribution.

- Non-community PWSs that feed chlorine for disinfection purposes are required to monitor and report chlorine residual levels on the MOR.

- Satellite systems without additional treatment do not need to monitor chlorine residual at the entry point to the distribution system.

(w) Chlorine Residual – Free (daily at plant tap/entry point)
(x) Chlorine Residual – Combined (daily at plant tap/entry point)
(y) Chlorine Residual – Free (daily in distribution system)
(z) Chlorine Residual – Combined (daily in distribution system)

- Report to one decimal place.

- If more than one sample is collected in any one day, then report the lowest result unless both free and combined chlorine residuals are being reported. In that case, report the lowest free chlorine residual if free chlorination is being practiced along with its associated combined value. If chloramination is being practiced, then report the lowest combined chlorine residual and its associated free value.

  Example: Free chlorination is being practiced; three samples were collected in one day in the distribution system as follows:

	Free chlorine	Combined chlorine
1230 Main Street	1.2 mg/L	0.2 mg/L
2455 First Street	1.4 mg/L	0.1 mg/L
7893 Third Street	1.0 mg/L	0.3 mg/L

  In column (y) you would report 1.0 mg/L and in column (z) you would report 0.3 mg/L (**not** 0.1 mg/L).

- Though encouraged, public water systems with multiple STUs are not required to report distribution chlorine residual data on each individual STU's MOR. Reporting the distribution data on any one of the MORs for the PWS will be acceptable.

Public water systems using chlorine dioxide as a primary disinfectant shall report the chlorine dioxide level of a daily sample collected at a representative point in the distribution system in column (y) of the MOR. Additionally:

- Report to one decimal place.
- If more than one sample is collected in any one day, report the other sample(s) in the comments section.

Note: Total chlorine residual analysis is to be performed by all communities and non-transient, non-communities at the time that total coliform distribution samples are collected per OAC 3745-81-70(E). If the free chlorine residual analysis was also performed, then this data (free and combined) should be considered when reporting the minimum level in the distribution system for the day.

(aa) Chlorine Residual – Total; # of Samples
- Report how many tests for total chlorine were performed during the month.

- The chlorine residual (total) shall be measured at least at the same points in the distribution system and at the same time as routine, repeat, and seasonal start-up total coliform samples are collected. Therefore, the number should be at least equal to the number of total coliform samples that were collected during the month.

(bb) Chlorine Residual – Total; Average Value

- Report the average value of all the tests performed from (aa) above to one decimal place.

(cc) and (dd) Chlorite/Chlorine Dioxide (Distribution Sampling)

Public water systems that feed chlorine dioxide have to routinely monitor their distribution system for chlorite with a monthly three sample set. Additional, follow-up, three sample set(s) will have to be collected if the chlorite MCL is exceeded at the entry point.

Public water systems that feed chlorine dioxide have to monitor their distribution system for chlorine dioxide with a follow-up, three sample set if the MRDL is exceeded at the entry point.

Place an "X" in the appropriate column (cc) or (dd) to identify whether chlorite or chlorine dioxide is being monitored. Proceed to instructions (ee)(ff).

Note: In the event that chlorite and chlorine dioxide monitoring occur on the same day, annotate the form as necessary to report both parameters (utilize the extra space provided in the comments section).

(ee) and (ff) Routine/Follow-Up (Distribution Sampling)

Public water systems that feed chlorine dioxide must collect routine monthly samples in the distribution system for chlorite. Additional, follow-up, samples may be required for chlorite or chlorine dioxide. Place an 'x' in the appropriate column to identify the type of sample being collected. Proceed to instructions (gg)(hh)(ii)(jj)(kk).

(gg) First Customer (0 hours) [FC00x]

(hh) First Customer (6 hours) [FC00x]

(ii) First Customer (12 hours) [FC00x]

(jj) Average Residence Time [AT00x]

(kk) Maximum Residence Time [MT00x]

These columns are used to report either chlorite or chlorine dioxide three-sample sets that are collected in the distribution system. Sampling shall occur as follows:

Three-sample set for chlorite

- Collect one sample near the first customer (sample monitoring point FC00x) and enter the result in column (gg).
- Collect one sample at a location representative of average residence time (sample monitoring point AT00x) and enter the result in column (jj).

- Collect one sample at a location representative of maximum residence time (sample monitoring point MT00x) and enter the result in column (kk).

Where "x" is a number associated with that sampling location, per your DBP sample monitoring plan.

Three-sample set for chlorine dioxide

If either chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no additional points of chlorination beyond the entry point (i.e., no booster chlorination), the public water system shall take the three samples as close to the first customer as possible, at intervals of at least six hours. Utilize columns (gg), (hh), and (ii). Otherwise, the three-sample set must be taken at the locations as described for chlorite.

(ll) Comments

Provide annotations as necessary.

Bromate Monitoring (Entry Point)

Bromate must be reported by the laboratory on the chemical SSR.

Water plants that use ozone must conduct monthly bromate monitoring at the entry point. The sample shall be collected while the ozonation system is operating under normal conditions. During months in which more than one sample is collected, the monthly result shall be the average of all samples.

Compliance with the MCL for bromate shall be based on a running annual arithmetic average, computed quarterly, of monthly samples. If the MCL is exceeded, then public notification is to occur in accordance with OAC 3745-81-32 and the Director is to be notified in accordance with OAC 3745-81-75.

If, during the first year of monitoring, any individual quarter's average will cause the running annual average to exceed the MCL, the public water system is in violation at the end of that quarter.

Failure to complete the required monitoring is a 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.

3. Signature and certification number of operator of record
   - The Operator of Record shall pin and submit the MOR through eDWR.
   - If the PWS is not required to have an operator of record, the MOR may be pinned by the designated PWS representative.

Table 1: Water Plant/Distribution System MOR Monitoring Requirements

Ref	Parameter	Reporting Criteria	Reporting Frequency (at Entry Point unless otherwise noted)	Rule Reference
(a)	Production	If a meter is installed	Every day water is produced	OAC 3745-81-03(I)(1)(c)
(b)	Calculated fluoride dosage	If fed	Daily	OAC 3745-83-01(I)(1)(d)
Raw - (c)	Fluoride	If fed	Raw – Monthly (prior to fluoridation)	OAC 3745-83-01(F)(4)
EP - (d) Dist. - (e)	Fluoride	If fed	Daily at Entry Point; Distribution not required by rule	OAC 3745-83-01(F)(4)
(f)	Fl highest plant tap	If fed	Highest of the month	OAC 3745-83-01(F)(4) & 3745-83-01(I)(1)(b)
(g)	Highest Fl plant tap date	If fed	Highest of the month	OAC 3745-83-01(F)(4) & 3745-83-01(I)(1)(b)
(h)	Fluoride compound	If fed	Monthly	OAC 3745-81-03(I)(1)(c)
(i)	Fl QC check sample date	If fed	Monthly	OAC 3745-83-01(I)(1)(g)
(j)	Fl QC check sample result	If fed	Monthly	OAC 3745-83-01(I)(1)(g)
(k)	pH [(1)]	If adjusted for formal corrosion control (OEPA Pb/Cu rules)	Bi-Weekly (every 14 days)	OAC 3745-83-01(F)(8)
		If adjusted for stability	Daily	
		If lime softening or membrane treatment is provided	Daily	
(l)	Alkalinity Phenolphthalein	If lime softening treatment is provided	Daily	OAC 3745-83-01(F)(1)(b)
(m)	Alkalinity Total	If lime softening or membrane treatment is provided	Daily	OAC 3745-83-01(F)(1)(a)
		If adjusted for formal corrosion control (OEPA Pb/Cu rules)	Bi-weekly (every 14 days)	
(n)	Alkalinity Stability	If lime softening or membrane treatment is provided	Weekly	OAC 3745-83-01(F)(1)(c)
(o)	Hardness[(5)]	If treatment = Ion Exchange Softening, Pop. $\leq$ 250 (CWS)	Monthly	OAC 3745-83-01(F)(9)
		If treatment = Ion Exchange Softening, Pop. > 250 (CWS)	Weekly	
		If treatment = lime softening or membranes	Daily	
(p)	Phosphorus Total	If any phosphate is added to the water supply	Monthly	OAC 3745-83-01(F)(10)
(q)	Orthophosphate	If fed for self-initiated corrosion control	Monthly	OAC 3745-83-01(F)(7)
		If fed for formal corrosion control (OEPA Pb/Cu rules)	Bi-weekly (every 14 days)	

Ref	Parameter	Reporting Criteria	Reporting Frequency (at Entry Point unless otherwise noted)	Rule Reference
(r1) (r2)	Iron community systems only[5]	If treatment consists of Iron Removal; Pop. ≤ 250	Weekly test kit with monthly lab split Sample, or Weekly at Certified Lab	OAC 3745-83-01(F)(5)(a)
		If treatment consists of Iron Removal; Pop. > 250	5 days/wk. test kit with monthly lab split Sample, or Weekly at Certified Lab	OAC 3745-83-01(F)(5)(b)
(s1) (s2)	Manganese community & NTNC systems[5]	If manganese is added as part of the treatment process or provide treatment for manganese; CWS Pop. ≤ 250 and all NTNC	Weekly test kit with monthly lab split Sample, or Weekly at Certified Lab	OAC 3745-83-01(F)(6)(a)
		If manganese is added as part of the treatment process or provide treatment for manganese; CWS Pop. > 250	5 days/wk. test kit with monthly lab split Sample, or Weekly at Certified Lab	OAC 3745-83-01(F)(6)(b)
(t)	Copper	If a copper compound is applied to the surface water supply	Weekly (monitoring is to continue for at least one month after the compound has been applied)	OAC 3745-83-01(F)(3)
E.P. (u) Dist. (dd)-(kk)	Chlorine Dioxide	If chlorine dioxide is fed	Entry Point - Daily Distribution - As required by the Director through detail plan approval. (three sample set(s) required if the entry point sample is > MRDL)	OAC 3745-81-70(F)(1) OAC 3745-81-70(F)(2)
E.P. (v) Dist. (cc),(ee)-(kk)	Chlorite	If chlorine dioxide is fed	Entry Point – Daily Distribution - Monthly - three sample set (additional three sample set(s) required if the entry point sample is > MCL)	OAC 3745-81-23(M)
EP (w) or (x) Dist. (y) or (z)	Chlorine Residual: free or combined[4,6]	If water is treated with chlorine for disinfection	Entry Point – Daily[2,3] Distribution – Daily	OAC 3745-83-01(F)(2)(a)
E.P. (n/a) Dist. (aa)-(bb)	Chlorine Residual Total	All community PWSs and NTNC PWSs that treat their water with chlorine or chloramines for disinfection purposes	To be monitored concurrently with the collection of total coliform compliance samples (routine, repeat, seasonal start-up)	OAC 3745-81-70(E)
SSR	Bromate[7]	All community PWSs and NTNC PWSs that treat the water with Ozone	Monthly	OAC 3745-81-23(L)

(1) Surface water systems shall also conduct monitoring in accordance with OAC 3745-81-74 and report on the Surface Water Treatment Plant MOR; Ground water systems that provide 4-log inactivation of viruses shall also conduct monitoring in accordance with OAC 3745-81-43 and report on the modified Surface Water Treatment Plant MOR.

(2) Consecutive systems without additional treatment do not need to monitor at the entry point.

(3) Non-community ground water systems whose distribution system is solely interior plumbing in a single building only need to collect one representative sample daily from distribution.

Ref	Parameter	Reporting Criteria	Reporting Frequency (at Entry Point unless otherwise noted)	Rule Reference

(4) Non-community ground water systems that utilize chlorine solely for the oxidation of iron, manganese, or hydrogen sulfide and are not required to maintain a residual in the distribution system and do not have to perform this monitoring.

(5) Non-community systems treating for an MCL or HAL may be required to perform this monitoring per a formal action of the Director.

(6) If chloramines are utilized in the distribution system, report the lowest combined chlorine residual. Otherwise, report the lowest free chlorine residual.

(7) Bromate is to be reported on the Chemical SSR by a certified laboratory and should not be reported on the Water Plant/Distribution System MOR.