

[For Public Water Systems]

**INSTRUCTIONS FOR COMPLETING THE SURFACE WATER TREATMENT PLANT
DISINFECTION, TURBIDITY (CFE, IFE) AND TOTAL ORGANIC CARBON
MONTHLY OPERATION REPORT
EPA FORM 5109
Ground Water CT Form**

PUBLIC WATER SYSTEM INFORMATION

PWS Name: Print or type name of public water system (PWS).
STU Name: Print or type source treatment unit (STU) name
PWSID #: Enter the PWS ID number.
STU #: Enter the STU ID number.

LABORATORY INFORMATION

Reporting Period: Enter month and year of the report.
Analytical Lab ID: Enter the laboratory ID number for the lab that performed the chlorine, turbidity, pH, temperature and alkalinity analysis.
Analytical Lab Name: Enter the name of the laboratory.

DISTRIBUTION DISINFECTANT REPORTING OAC 3745-81-01(C)(1), OAC 3745-83-01(G)(1)(2),
OAC 3745-81-72(B)(4)

- (a) Enter the number of disinfectant samples analyzed during the reporting period.
- (b) Enter the number of disinfectant samples analyzed that had results below the minimum required residual level. The residual disinfectant concentration in distribution shall not be less than 0.2 mg/L free or 1.0 mg/L combined in more than 5% of the samples for any two consecutive months.
- (c) Enter the percent of disinfectant samples meeting the required residual level:

$$\frac{a-b}{a} \times 100 \quad \text{where} \quad \begin{array}{l} a = \text{number of samples analyzed and} \\ b = \text{number of samples below required residual.} \end{array}$$

- (d) Enter the percent of disinfectant samples that met the minimum disinfectant requirement in the previous month.

CLEARWELL INFORMATION

- (e) Circle/Select whether the CT calculation ~~type~~ is simple or complex. A simple calculation involves one clearwell or multiple clearwells with identical water depths and identical values for pH, temperature and disinfectant. A complex calculation involves two or more clearwells with at least one dissimilar variable.
- (f) Circle/Select whether or not the disinfectant is monitored continuously (circular pen chart or 6 minute data logging). PWS > 3,300 population shall monitor and record residual disinfectant concentration of the water entering the distribution system continuously. If there is a failure of

the continuous disinfectant monitoring equipment, grab sampling every 4 hrs shall be conducted but continuous monitoring must be placed back on line in no more than 5 working days after the failure. PWS $\leq 3,300$ population, with acceptance from the director, may take four hour grab samples in lieu of continuous monitoring.

If chloramines are utilized in the distribution system, the continuous analyzer should monitor combined chlorine residual (typically requires the simultaneous monitoring of free and total chlorine residuals) otherwise the continuous analyzer should measure free chlorine.

- (g) Circle/Select the filtration type: conventional, slow sand or direct filtration.
- (h) Enter the log inactivation required.
 - Conventional (0.5)
 - Slow sand (1.0)
 - Direct filtration (1.0)
 - Other approved requirement
- (i) Enter the Clearwell ID
- (j) Enter the Clearwell surface area (sq ft) and
- (k) Enter the approved effective volume factor of each clearwell.

DATA FIELD DESCRIPTIONS FOR DISINFECTION ANALYTICAL INFORMATION (For example CT calculations, **see pg 8**).

- (l) Free/Combined. Report the lowest free or combined chlorine residual (mg/L) in the water entering the distribution system for each day.

If chloramines are utilized in the distribution system, report the lowest combined chlorine residual. Otherwise, report the lowest free chlorine residual. It is only necessary to report either free or combined chlorine residual depending upon whether chloramines or free chlorine is utilized in the distribution system.

- (m) Duration Chlorine Residual Fell Below Requirement: Enter the duration of time (to the nearest 0.1 hour) that the residual disinfectant fell below the requirement of 0.2 mg/L free or 1.0 mg/L combined. The residual disinfectant concentration in the water entering the distribution system shall not be less than 0.2 mg/L free chlorine or 1 mg/L combined chlorine for more than four consecutive hours.
- (n) Peak Hourly Treatment Flow: Enter the peak hourly treatment flow (maximum treated water flow) in gallons per minute (gpm) for each day. Peak hourly flow should be total treated water flow, **NOT** high service pumping rate, unless there is no other way to measure total flow. Contact your district office for additional guidance.
- (o) Highest pH. Enter the highest recorded pH measured during the peak hourly flow for the treated water for each day.
- (p) Lowest Temp. Enter the lowest temperature in Celsius measured during the peak hourly flow for each day. [$^{\circ}\text{C} = (^{\circ}\text{F} - 31) / 1.8$]
- (q) Lowest Clearwell Operating Depth/Level: If only one clearwell is used or if two or more clearwells are used and the CT calculation is simple (identical values for water depth, temperature, pH and

chlorine residual in all clearwells), enter the lowest operating depth/level (ft) during peak hourly flow. If two or more clearwells are used and the CT calculation is complex, then leave this column blank and report the clearwell ID and the lowest operating level/depth during peak hourly flow (i.e., #1-26 ft, #2-30 ft) in the 'Comments' column. If temperature, pH or chlorine residual also vary between clearwells, include this information for each clearwell.

- (r) Lowest Disinfectant Concentration: Enter the lowest disinfectant concentration of the clearwell effluent in mg/L during the peak hourly flow for each day.
- (s) Effective Disinfectant...Enter the effective disinfectant contact time (minutes) the disinfectant was in contact with the water.

$$\frac{[\text{clearwell surface area (sqft)(i)} \times \text{lowest clearwell depth (q)} \times \text{approved effective volume factor(k)} \times 7.48]}{\text{peak hourly flow (n)}}$$

- (t) Minimum Actual CT. Enter the minimum actual CT value (minutes x mg/L) achieved during peak hourly flow[(r) x (s)]. When the peak flow rate lasts more than 1 hour, select the concurrent pH, temperature, clearwell depth/level, and disinfectant concentration which results in the lowest minimum actual CT value.
- (u) Required CT. Enter the required CT value (minutes x mg/L) necessary to provide adequate disinfection (from CT Tables in OAC 3745-81-72). Without interpolation use the table that has the nearest but lowest temperature recorded at the peak hourly flow, then the higher pH, and the higher residual disinfectant concentration.
- (v) Interpolation. Enter a "Y" if interpolation of CT values was performed.
- (w) Raw Alkalinity. Enter the raw alkalinity.
- (x) Raw TOC. Enter the raw TOC.
- (y) Finished TOC. Enter the finished TOC.
- (z) Comments. Add comments here. For example, if more than one clearwell is used on any given day, indicate which were in operation. Additionally, if the water depths are not equal, report the corresponding depths during the peak hourly flow. [See instruction (q)].

TOC VALUE INFORMATION OAC 3745-81-77 (Enter the laboratory certification number in the comments section for the lab that analyzed the following parameters: TOC and any ATC samples i.e., TOC- Chem-8000, SUVA-Chem-8001; or TOC, SUVA- Chem-8000)

TOC reporting applies to surface water community and non-transient non-community public water systems using conventional filtration. TOC reporting does not apply to surface water transient non-community public water systems.

<u>TOC Value Information</u>	
Calculated TOC Value	ATC (1.0)
(aa)	A, B, C, D, E, None (bb)

(aa) Calculated TOC Value

Calculate the monthly total organic carbon (TOC) value based on monitoring results for TOC. Refer to the explanation and example calculation below.

Every thirty days, collect samples for raw source alkalinity (prior to any chemical application), raw source TOC (prior to any chemical application) and treated TOC. Collect the treated TOC sample at the combined filter effluent (CFE). The raw source TOC and the treated TOC samples are “paired” samples meaning the sample collections should be timed such that the treated TOC sample is collected after the source TOC water has traveled through the plant to the CFE (approximate time).

EXAMPLE - TOC compliance calculation.

Source Total Alkalinity: 65 mg/L
Raw Source TOC: 4 mg/L
Treated Water TOC: 2.5 mg/L

Step 1: Calculate the percent TOC removed through the treatment process:

$$\frac{[(\text{Raw Source TOC}) - (\text{Treated Water TOC})]}{[\text{Raw Source TOC}]} \times 100 = \text{Percent TOC removed}$$

$$\frac{[4 \text{ mg/L} - 2.5 \text{ mg/L}]}{[4 \text{ mg/L}]} \times 100 = 37.5\% \text{ TOC removed}$$

Note: If the treated water TOC level is greater than the source water TOC level, enter a negative value for the percent TOC removed.

If the source water TOC level is less than 2.0 mg/L, you may use the Alternative TOC Compliance Criteria (ATC) described in the ATC Table on page 5. If the source water TOC level is 2.0 or greater, go to Step 2 to determine the percentage removal required.

Step 2: Determine the percentage of TOC removal required from the table below: OAC 3745-81-77(F).

	Source Water Alkalinity, mg/L as CaCO ₃		
Source Water TOC mg/L	0-60	> 60-120	> 120 ¹
≥ 2.0 - 4.0	35%	25%	15%
> 4.0 - 8.0	45%	35%	25%
> 8.0	50%	40%	30%

1 - Systems practicing softening must meet the TOC removal requirements in this column.

Step 3: Calculate the TOC value for each paired sample by dividing the actual percentage of TOC removed by the required percentage to be removed:

$$\frac{37.5\% \text{ TOC (actually removed)}}{25\% \text{ TOC (removal required)}} = \text{TOC value } 1.5$$

Step 4: Report the calculated TOC value (aa) in the first column of the TOC Value Information Box.

Note that if more than one paired sample is collected in a month, the TOC value is the average of all the TOC values for all the individual paired samples.

(bb) Alternative TOC Compliance Criteria

Alternative TOC Compliance Criteria (ATC) can be used to comply with rule OAC 3745-81-77 if the source water TOC is less than 2.0 or if the TOC value is less than 1.0. Any one of the compliance criterion below, if met, is assigned a TOC value of 1.0. Select ATC code A, B, C, D or E, if used, or circle/select "None".

Alternative TOC Compliance Criteria Table

CODE	Alternative TOC Compliance Criteria (ATC)
A	In any month that the treated or source water TOC level, measured according to rule OAC 3745-81-27, is less than 2.0 mg/L, a monthly value of 1.0 may be reported.
B	In any month where a system practicing softening removes at least 10 mg/L magnesium hardness (as CaCO ₃), a monthly value of 1.0 may be reported.
C	In any month that the finished water SUVA*, measured according to rule OAC 3745-81-27, is < or = 2.0 L/mg-m, a monthly value of 1.0 may be reported.
D	In any month that the source water SUVA*, measured according to rule OAC 3745-81-27, is < or = 2.0 L/mg-m, a monthly value of 1.0 may be reported.
E	In any month the system is practicing enhanced softening and lowers the alkalinity below 60 mg/L (as CaCO ₃), a monthly value of 1.0 may be reported.

* SUVA is Specific Ultra Violet Absorption

Note: Records of all ATC sample results, must be kept on file and available for review. The record retention requirement is 12 years. Systems with an Ohio EPA approved removal percentage based on step 2 jar testing in accordance with OAC 3745-81-77(F)(3) thru (9), must keep this information on file and available for review.

TURBIDITY REPORTING INFORMATION OAC 3745-81-74

(cc) Turbidity Location: Circle/Select the Ohio EPA accepted turbidity sampling location used at the plant. Acceptable locations are:

- (1) Combined filter effluent prior to entry into the clearwell; or
- (2) Average of measurements from each filter effluent; or
- (3) Clearwell effluent; or
- (4) Plant effluent or immediately prior to entry into the distribution system.

(dd) Total Hours Filtering: Enter the total number of hours water was filtered for each day.

(ee) Total: Record the total number of hours (to the nearest 0.1 hour) the plant filtered water

(ff) Maximum Turbidity: Enter the maximum turbidity value (NTU) for each day.

(gg) Max: Record the maximum turbidity value for the month

(hh) Minimum Turbidity: Enter the minimum turbidity value (NTU) for each day.

(ii) Average Turbidity: Enter the average of all turbidity values (NTU) for each day.

Grab Sample Report OAC 3745-81-74(A).

Systems monitoring at locations 1 or 2 shall monitor within the first and last hours of filter operations and every four hours in-between.

Systems monitoring at locations 3 or 4 shall monitor turbidity at least every four hours unless the high service pumps are locked out for a portion of the day. If the pumps are locked out for a portion of the day, samples shall be taken during the first and last hours of pump operations, and every four hours in-between.

(jj) Total Number of Results: Enter the number of filtered water grab sample turbidity results collected each day.

(kk) Total (Number of Results): Record the total number of turbidity values for the month.

(ll) Number of Results Exceeding Standard. Enter the total number of filtered water grab samples exceeding the turbidity standard for each day.

(mm) Total (Number Exceeding Standard): Record the total number of turbidity values for the month that exceeded the applicable standard.

Continuous Monitoring Report

The system may substitute continuous monitoring for grab sample monitoring if the system validates the continuous measurement for accuracy on a daily basis using a protocol accepted by the Director. Continuous recording shall also be provided.

Note: Systems monitoring at locations 1 or 2 shall report during hours of filter operations. Systems monitoring at locations 3 or 4 shall report results 24 hours a day unless the high service pumps are locked out for a portion of the day.

(nn) Number of Hours Results were Recorded: Enter the total number of hours that filtered water turbidity was monitored by a continuous monitoring device for each day (to the nearest 0.1 of an hour).

(oo) Total (Number of Hours Results Recorded): Record the total number of hours (to the nearest 0.1 hour) that turbidity values were measured for the month.

(pp) Number of Hours Results Exceeded Standard: Enter the total number of hours that filtered water turbidity results exceeded the standard for each day (to the nearest 0.1 of an hour).

(qq) Total (Number of Hours Exceeded Standard): Record the total number of hours (to the nearest 0.1 hour) for the month in which turbidity values exceeded the applicable standard.

Calculating Percent Within Standard

(rr) Percent within Standard: Enter the percent of turbidity samples that were within the standard.

(Percentage of hours turbidity was not exceeded).

For Grab Sampling:

$$\frac{(\text{total number of results}) - (\text{total number of results exceeding standard})}{(\text{total number of results})} \times 100$$

For Continuous Monitoring:

$$\frac{(\text{total number hours filtering}) - (\text{total number hours results exceeded standard})}{(\text{total number of hours})} \times 100$$

Results Exceeding Standard

(ss) Date: Enter the date that the particular turbidity result exceeded the standard.

(tt) Time: Enter the time that the particular turbidity result exceeded the standard in military time format (00:00:00 – 23:59:59).

(uu) Turbidity: Enter the actual turbidity value (NTU).

(vv) Duration: Enter the duration in hours (to the nearest 0.1 hour) that turbidity exceeded the standard.

Turbidity values that have been determined, but are not required to be reported on this form, are required to be kept and made available for inspection upon request. The record retention requirement for these analyses is 12 years.

Report Certification

(ww) Signature: Operator-of-Record (DOP) must sign report.

(xx) Certification number: Print the Operator's Certification number.

(yy) Date: Print the date the report was completed.

The monthly operating report is to be submitted to your local Ohio EPA office by the tenth day of the following month. Send your report to the attention of: Division of Drinking and Ground Waters for your corresponding District Office.

Ohio EPA
Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402
(419) 352-8461

Ohio EPA
Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330) 963-1200

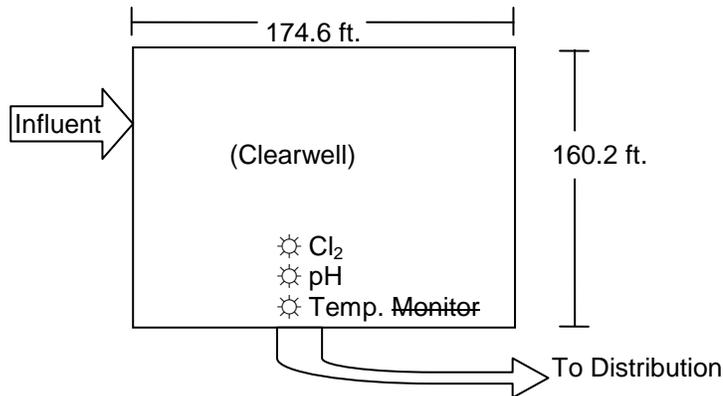
Ohio EPA
Central District Office
PO Box 1049
Columbus, OH 43216-1049
(614) 728-3778

Ohio EPA
Southwest District Office
401 East Fifth Street
Dayton, OH 45402
(937) 285-6357

Ohio EPA
Southeast District Office
2195 Front Street
Logan, OH 43188
(740) 385-8501

EXAMPLE CT CALCULATION #1

SIMPLE CALCULATION - 1 clearwell with an Approved Effective Volume Factor of 0.2



NOTE: All areas must be in square feet, and all flow rates must be in gallons per minute.

During Peak Hourly Flow:

Free chlorine concentration of clearwell effluent:	1.1 mg/L
Water temperature of clearwell effluent:	8°C
Water depth in clearwell:	17.5 feet
pH of clearwell effluent:	8.2
Peak hourly flow:	12,490 gpm

NOTE: Peak hourly flow is total treated water flow, **NOT** high service pumping rate!

STEP 1. Calculate the Surface Area of Clearwell

$$A = (160.2 \times 174.6)$$
$$A = 27,970 \text{ sq. ft.}$$

STEP 2 Calculate Effective Contact Time (T)

$$T = \frac{(\text{Effective Volume Factor}) \times (\text{Surface Area}) \times (\text{Minimum Clearwell Level}) \times (7.48)}{\text{Peak Hourly Flow}}$$

$$T = \frac{0.2 \times 27,970 \times 17.5 \times 7.48}{12,490}$$

$$T = 58.627 \text{ minutes}$$

$$T = 59 \text{ minutes (rounded)}$$

STEP 3 Calculate the Actual CT Value during the Peak Hourly Flow

$$CT = (\text{Free chlorine concentration of clearwell effluent}) \times (\text{Contact Time})$$

$$CT = 1.1 \text{ mg/L} \times 59 \text{ min}$$

$$CT = 64.9 \text{ mg/L} - \text{min}$$

CT = 65 (rounded)

STEP 4 Determine the Required CT Value

Temperature of clearwell effluent 8°C
 pH of clearwell effluent 8.2
 Free Chlorine Concentration of clearwell effluent 1.1 mg/l
 Disinfection for Log Inactivation Required
 for Conventional Filtration 0.5
 for Direct or Slow Sand Filtration 1.0

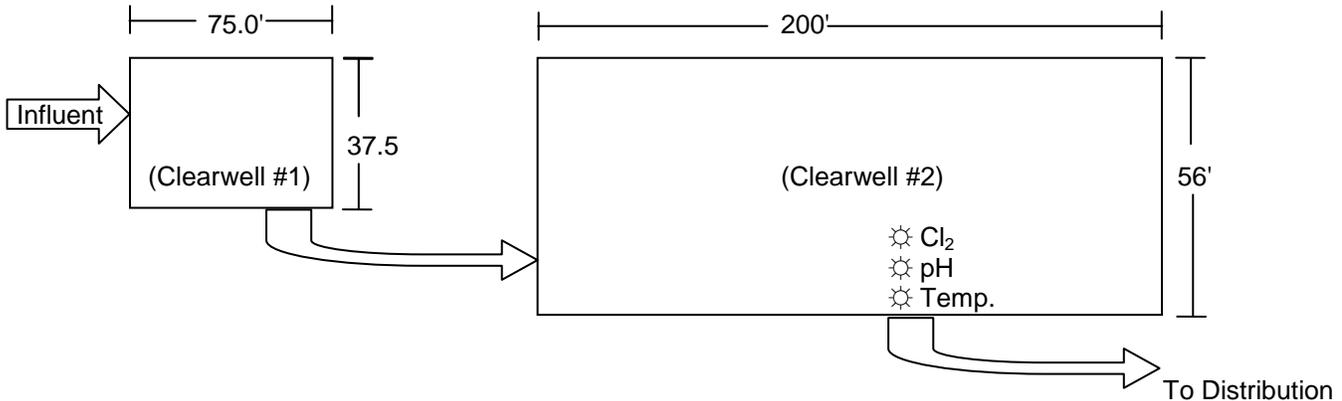
Note: Temperature is rounded down to 5°C, pH is rounded up to 8.5, chlorine residual is rounded up to 1.2 alternatively, results may be interpolated from the tables.

CHLORINE CONCENTRATION (mg/l)	5°C		pH = 8.5			
	Log Inactivations					
	0.5	1.0	1.5	2.0	2.5	3.0
<=0.4	39	79	118	157	197	236
0.6	41	81	122	163	203	244
0.8	42	84	126	168	210	252
1.0	43	87	130	173	217	260
1.2	45	89	134	173	223	267
1.4	46	91	137	183	228	274
1.6	47	93	141	187	234	281
1.8	48	96	144	191	239	287
2.0	49	98	147	196	245	294
2.2	50	100	150	200	250	300
2.4	51	102	153	204	255	306
2.6	52	104	156	208	260	312
2.8	53	106	159	212	265	318
3.0	54	108	162	216	270	324

The required CT value is 45 for Conventional Filtration.
 The required CT value is 89 for Direct or Slow Sand Filtration.

EXAMPLE CT CALCULATION #2

Complex Calculation - 2 clearwells with different Approved Effective Volume Factors and different clearwell levels.



Approved Effective Volume Factors

Clearwell # 1 - 0.1

Clearwell # 2 - 0.6

During Peak Hourly Flow:

Free chlorine concentration of clearwell effluent#2 1.1 mg/L

Water temperature of clearwell effluent #2 8°C

Water depth in clearwells

Clearwell # 1 8 feet

Clearwell # 2 10 feet

pH of clearwell effluent #2 8.2

Peak hourly flow 4,150 gpm

NOTE: Peak Hourly Flow is total treated water flow, NOT high service pumping rate!

STEP 1. Calculate the Surface Area (A) of each Clearwell

Clearwell # 1 $A_1 = 37.5 \times 75$
 $A_1 = \mathbf{2,813 \text{ sq. ft.}}$

Clearwell # 2 $A_2 = 56 \times 200$
 $A_2 = \mathbf{11,200 \text{ sq. ft.}}$

STEP 2. Calculate Effective Contact Time (T) for each clearwell.

$$T = \frac{(\text{Effective Volume Factor}) \times (\text{Surface Area}) \times (\text{Minimum Clearwell Level}) \times 7.48}{\text{Peak Hourly Flow}}$$

Clearwell #1 $T_1 = \frac{0.1 \times 2,813 \times 8 \times 7.48}{4,150}$

Clearwell # 2 $T_2 = \frac{0.6 \times 11,200 \times 10 \times 7.48}{4,150}$

$T_1 = 4.056 \text{ minutes}$

$T_2 = 121.121 \text{ minutes}$

$T_1 = \mathbf{4 \text{ minutes}}$ (rounded)

$T_2 = \mathbf{121 \text{ minutes}}$ (rounded)

STEP 3. Calculate the Total Effective Contact Time (Tt)

$T_t = T_1 + T_2$

$$T_t = 4 + 121 = 125 \text{ minutes}$$

STEP 4. Calculate the Actual CT Value During the Peak Hourly Flow

$$CT = (\text{Free chlorine concentration of clearwell effluent}) \times (\text{Contact Time})$$

$$CT = 1.1 \text{ mg/L} \times 125 \text{ min}$$

$$CT = 137.5 \text{ mg/L} \cdot \text{min}$$

$$CT = 138 \text{ (rounded)}$$

STEP 5. Determine the Required CT Value

Water Temperature at clearwell effluent #2	8°C
pH at clearwell effluent #2	8.2
Free Chlorine Concentration at clearwell effluent #2	1.1 mg/L
Disinfection for Log Inactivation Required	
for Conventional Filtration	0.5
for Direct or Slow Sand Filtration	1.0

Temperature is rounded down to 5°C, pH is rounded up to 8.5, chlorine residual is rounded up (alternatively, results may be interpolated from the tables).

CHLORINE CONCENTRATION (mg/l)	5°C		pH = 8.5			
	Log Inactivations					
	0.5	1.0	1.5	2.0	2.5	3.0
<=0.4	39	79	118	157	197	236
0.6	41	81	122	163	203	244
0.8	42	84	126	168	210	252
1.0	43	87	130	173	217	260
1.2	45	89	134	173	223	267
1.4	46	91	137	183	228	274
1.6	47	93	141	187	234	281
1.8	48	96	144	191	239	287
2.0	49	98	147	196	245	294
2.2	50	100	150	200	250	300
2.4	51	102	153	204	255	306
2.6	52	104	156	208	260	312
2.8	53	106	159	212	265	318
3.0	54	108	162	216	270	324

The required CT value is 45 for Conventional Filtration.
 The required CT value is 89 for Direct or Slow Sand Filtration.

Appendix A:
SURFACE WATER TREATMENT PLANT DISINFECTION, TURBIDITY (CFE, IFE) AND TOTAL
ORGANIC CARBON
MONTHLY OPERATION REPORT
EPA FORM 5109
Ground Water CT Form

**INSTRUCTIONS FOR COMPLETING THE ADDENDUM FOR INDIVIDUAL
FILTER TURBIDITY RESULTS MONTHLY OPERATING REPORT (MOR)
IESWTR SYSTEMS $\geq 10,000$ POPULATION**

GENERAL

Each public water system that uses a surface water source, in whole or in part, and provides water to a combined population of at least ten thousand, shall continuously monitor the turbidity from each individual filter effluent. Each public water system required to conduct individual filter turbidity monitoring shall report monthly to the appropriate Ohio EPA district office that individual filter effluent turbidity monitoring has been conducted. These same public water systems shall record the results of each individual filter turbidity monitoring every fifteen minutes. The results of the recorded measurements shall be used to determine whether the public water system had an individual filter turbidity exceedance during the month. The water system shall also report on a monthly basis to the appropriate Ohio EPA district office, any individual filter turbidity exceedances and the status of all "actionable requirements." The individual turbidity exceedances and actionable requirements are listed below.

INDIVIDUAL FILTER TURBIDITY PERFORMANCE STANDARDS	
Individual Filter Event	Action Required
<p><u>EVENT A</u> Any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Complete a filter profile within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) • Report that a filter profile has been produced or report the obvious reason for the exceedance.
<p><u>EVENT B</u> Any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Complete a filter profile within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) • Report that the filter profile has been produced or report the obvious reason for the exceedance
<p><u>EVENT C</u> Any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Complete an individual filter self-assessment within 14 days of the exceedance. • Report that an individual filter self-assessment was conducted.
<p><u>EVENT D</u> Any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Arrange for the completion of a comprehensive performance evaluation (CPE) by the Ohio EPA or a third party no later than 30 days following the exceedance. Must contact the Ohio EPA before arranging a third party CPE. • Have the CPE completed and submitted to the Ohio EPA no later than 90 days following the exceedance.

GUIDELINES

A completed EPA 5109-A form entitled "Addendum for Individual Filter Turbidity Results Monthly Operation Report", must be submitted each month. In addition to reporting that monitoring was conducted, and the results of the required individual filter effluent turbidity monitoring that constitutes an exceedance are required to be entered on the EPA 5109-A form. The status of all incomplete "actionable requirements" are also required to be reported on the EPA 5109-A form.

PUBLIC WATER SYSTEM INFORMATION

- Print or type the name of the public water system (PWS) and the public water system identification (PWS-ID) number.
- Print or type the name of the source treatment unit (STU) and the source treatment unit identification (STU-ID) number.
- Enter the month and year being reported.
- Record whether or not the continuous filter monitoring and recording equipment (for any filter) was off-line during the month. If yes, then attach a separate sheet with a table including the filter number(s), the date(s), duration of outage and individual filter grab sampling frequency.

INDIVIDUAL FILTER EVENT INFORMATION

There are four individual filter events listed as A, B, C and D on EPA 5109-A form. For each of the four individual filter events listed, record whether or not any of the individual filters had an individual filter exceedance as described in A, B, C and D. If any of the answers for A, B, C or D are "Yes", then complete the table as appropriate.

To fill out the table, in the first column enter the number of the filter that had an exceedance followed by the event which was triggered (A, B, C or D) in the second column. In the third column enter the dates of each turbidity exceedance and then enter the times of each turbidity exceedance in the fourth column. Finally, enter the turbidity measurements which triggered the event.

Appendix B: Surface Water Treatment Plant Addendum A for Population \geq 10,000

EXAMPLE:

Filter Number	Individual Filter Event (A, B, C, D)	Date	Time	Turbidity (NTU) Measurement
5	A	2/5/09	5:00 am	1.2
5	A	2/5/09	5:15 am	1.3
7	C	2/14/09	2:30 pm	1.1
7	C	2/14/09	2:45 pm	1.1

Below the table, record whether or not an individual filter event (A, B, C or D) was reported on the 5109-A report which was submitted last month for any of the filters listed in the table. For the example above, the answer would be 'yes'. EVENT C only occurs after exceeding a turbidity standard for three consecutive months. For Filter No. 7 to be recorded as EVENT C, Filter No. 7 would have been reported as having an EVENT A during the previous two months. In the third consecutive month of exceeding 1.0 NTU in two consecutive measurements taken 15 minutes apart, the EVENT A would change to EVENT C.

REQUIRED FOLLOW-UP ACTIONS

If a filter profile, individual filter self-assessment, or comprehensive performance evaluation is required, complete the appropriate questions listed below the table.

FILTER PROFILE:

- Record whether or not the required filter profile was completed within 7 days from the individual filter event. If No, provide a separate sheet with an explanation for why a profile was not completed.

INDIVIDUAL FILTER SELF-ASSESSMENT (IFSA):

- Record whether or not the required IFSA was completed within 14 days from the individual filter event.
- Record the completion date for the IFSA.

Please refer to the fact sheet for conducting Individual Filter Self-Assessments which can be downloaded from: www.epa.state.oh.us/ddagw/pubs.html#factsht

COMPREHENSIVE PERFORMANCE EVALUATION (CPE):

- Record the number of the filter that experienced the event that required a CPE to be completed.
- Record the date (*2nd consecutive month date*) of the event that required a CPE to be completed.
- Record the date your public water system contacted the Ohio EPA central office to arrange for an Ohio EPA conducted CPE or the dates third party CPE approval was requested from and granted by the Director.
- For third party CPE's, record the date your public water system submitted the final CPE report to the Ohio EPA District Office.
- Record whether or not the required CPE was arranged within 30 days of individual filter event (*2nd consecutive month date*).
- Record whether or not the required CPE report was submitted within 90 days of individual filter event (*2nd consecutive month date*).

Appendix B: Surface Water Treatment Plant Addendum A for Population \geq 10,000

Please refer to the fact sheet for conducting comprehensive performance evaluations which can be downloaded from the Ohio EPA Website.

On the front page, enter the name, Certification Number and signature of the Operator of Record and the date the report was completed.

The completed EPA 5109-A form must be received by your local Ohio EPA District Office, Attention: Division of Drinking and Ground Waters, by the 10th day of the month following the month being reported.



**ADDENDUM FOR INDIVIDUAL FILTER
TURBIDITY RESULTS
MONTHLY OPERATION REPORT (MOR)
IESWTR SYSTEMS, \geq 10,000 population**

Division of Drinking and Ground Waters

PUBLIC WATER SYSTEM INFORMATION:

PWS Name: _____ PWSID #: _____
 STU Name: _____ STU #: _____
 Reporting Month and Year: _____

Yes _____ No _____ Was the continuous filter monitoring or recording (every 15 minutes) equipment off-line during the month? **If yes**, indicate the filter number (s), the date(s), duration, and individual filter grab sampling frequency on a separate sheet.

INDIVIDUAL FILTER EVENT:

Did any individual filter exceed:

Yes _____ No _____ A. 1.0 NTU in two consecutive measurements taken 15 minutes apart? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (i.e., filter profile).

Yes _____ No _____ B. 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous operation after the filter has been backwashed, or otherwise taken offline? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (i.e., filter profile).

Yes _____ No _____ C. 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (i.e., Individual Filter Self-Assessment, IFSA).

Yes _____ No _____ D. 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (i.e., Comprehensive Performance Evaluation, CPE).

I certify under penalty of law that I have personally examined and am familiar with the data submitted in this MOR; that the data in this report is true, accurate and complete; and I am aware that falsification thereof could result in the imposition of fines and penalties including revocation of my certification as a public water system operator.

Name of Operator of Record and Certification Number	Signature of Operator of Record Date
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**INSTRUCTIONS FOR COMPLETING THE ADDENDUM FOR INDIVIDUAL
FILTER TURBIDITY RESULTS MONTHLY OPERATION REPORT (MOR)
LT1 SWTR SYSTEMS, <10,000 POPULATION**

GENERAL

Each public water system that uses a surface water source, in whole or in part, and provides water to a combined population of less than ten thousand shall continuously monitor the turbidity from each individual filter effluent (or combined filter effluent for systems with two filters). Each public water system shall report monthly to the appropriate Ohio EPA district office that individual filter effluent turbidity monitoring has been conducted. These same public water systems shall record the results of each individual filter effluent turbidity monitoring every fifteen minutes. The results of the recorded measurements shall be used to determine whether the public water system had an individual filter turbidity exceedance during the month. The water system shall also report on a monthly basis to the appropriate Ohio EPA district office, any individual filter turbidity exceedance, and the status of all "actionable requirements." The individual turbidity events and actionable requirements are listed below.

INDIVIDUAL FILTER TURBIDITY PERFORMANCE STANDARDS	
Individual Filter Event	Action Required
<p><u>EVENT A</u> Any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Report reason for the exceedance, if known.
<p><u>EVENT B</u> Any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Complete an individual self-assessment within 14 days of the exceedance. • Report that an individual filter self-assessment was conducted.
<p><u>EVENT C</u> Any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months</p>	<ul style="list-style-type: none"> • Report the filter number, the turbidity measurements, and the date(s) on which the exceedances occurred. • Arrange for the completion of a comprehensive performance evaluation (CPE) by the Ohio EPA or a third party no later than 60 days following the exceedance. Must contact the Ohio EPA before arranging a third party CPE. • Have the CPE completed and submitted to the Ohio EPA no later than 120 days following the exceedance.

GUIDELINES

A completed EPA 5109-B form entitled "Addendum for Individual Filter Turbidity Results Monthly Operation Report" must be submitted each month. In addition to reporting that individual filter effluent monitoring was conducted, the results of the required individual filter effluent turbidity monitoring that constitutes an individual filter event are required to be entered on the EPA 5109-B form. The status of all incomplete "actionable requirements" are also required to be reported on the EPA 5109-B form.

PUBLIC WATER SYSTEM INFORMATION

- Print or type the name of the public water system (PWS) and the public water system identification (PWS-ID) number.
- Print or type the name of the source treatment unit (STU) and the source treatment unit identification (STU-ID) number.
- Enter the month and year being reported.
- Record whether you monitor each individual filter effluent (or combined filter effluent for systems with two or fewer filters)
- Record whether or not the continuous filter monitoring and recording equipment (for any filter) was off-line during the month. If 'yes', then attach a separate sheet with a table including the filter number(s), the date(s), duration of outage and individual filter grab sampling frequency.

INDIVIDUAL FILTER EVENT INFORMATION

There are three individual filter events listed as A, B, and C on EPA 5109-B form. For each of the three individual filter events listed, record whether or not any of the individual filters (or combined filter effluent for systems with two filters) had an individual filter turbidity exceedance as described in A, B, and C. If any of the answers for A, B, and C are "Yes", then complete the table as appropriate.

To fill out the table, in the first column enter the number of the filter that had an exceedance followed by the event which was triggered (A, B, and C) in the second column. In the third column, enter the dates of each turbidity exceedance and then enter the times of each turbidity exceedance in the fourth column. Finally, enter the turbidity measurements which triggered the event.

EXAMPLE:

Filter Number	Individual Filter Event (A, B, C)	Date	Time	Turbidity (NTU) Measurement
5	B	4/5/09	4:00 pm	1.3
5	B	4/5/09	4:15 pm	1.4

Below the table on the form, record whether or not an individual filter event (A, B, or C) was reported on the 5109-B report which was submitted last month for any of the filters listed in the table. For the example above, the answer would be "yes". EVENT B only occurs after exceeding a turbidity standard for three consecutive months. For Filter No. 5 to be recorded as EVENT B, Filter Number No. 5 would have been reported as having an EVENT A during the previous two months. In the third consecutive month of exceeding 1.0 NTU in two consecutive measurements taken 15 minutes apart, the EVENT A would change to EVENT B.

REQUIRED FOLLOW-UP ACTIONS

If an individual filter self-assessment or comprehensive performance evaluation is required, complete the appropriate questions listed below the table on the form.

INDIVIDUAL FILTER SELF-ASSESSMENT (IFSA):

- Record whether or not the required IFSA was completed within 14 days from the individual filter event.
- Record the completion date for the IFSA.
- Please refer to the fact sheet for conducting individual filter self-assessments which can be downloaded from the Ohio EPA Website.

COMPREHENSIVE PERFORMANCE EVALUATION (CPE):

- Record the number of the filter that experienced the event that required a CPE to be completed.
- Record the date (2nd consecutive month date) of the event that triggered the requirement to conduct a CPE.
- Record the date when your public water system finalized a date for conducting the CPE (not the date of the CPE). This will be the date you contacted the Ohio EPA District Office to arrange for an Ohio EPA conducted CPE or the date you contacted the Ohio EPA District Office to request that the CPE be conducted by a third party.
- For third party CPE's, record the date your public water system submitted the final CPE report to the Ohio EPA District Office.
- Record whether or not the required CPE was arranged within 60 days of individual filter event (2nd consecutive month date).
- Record whether or not the required CPE report was submitted within 120 days of individual filter event (2nd consecutive month date).
- Please refer to the fact sheet for conducting comprehensive performance evaluations which can be downloaded from the Ohio EPA Website

Enter the name, Certification Number and signature of the Operator of Record and the date the report was completed.

The completed EPA 5109-B form must be received by your local Ohio EPA District Office, Attention: Division of Drinking and Ground Waters, by the 10th day of the month following the month being reported.



**ADDENDUM FOR INDIVIDUAL FILTER
TURBIDITY RESULTS
MONTHLY OPERATION REPORT (MOR)
LT1 SWTR SYSTEMS, <10,000 population**

Division of Drinking and Ground Waters

PUBLIC WATER SYSTEM INFORMATION:

PWS Name: _____ PWSID #: _____
STU Name: _____ STU #: _____
Reporting Month and Year: _____

Yes _____ No _____ Do you monitor each individual filter effluent (or combined filter effluent for systems with two filters)?

Yes _____ No _____ Was the continuous filter monitoring or recording (every 15 minutes) equipment off-line during the month? **If yes**, indicate the filter number (s), the date(s), duration, and individual filter grab sampling frequency on a separate sheet.

INDIVIDUAL FILTER EVENT (or combined filter effluent for systems with two filters that monitor combined filter effluent in lieu of individual filters):

Did any individual filter exceed:

Yes _____ No _____ A. 1.0 NTU in two consecutive measurements taken 15 minutes apart? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (report cause, if known).

Yes _____ No _____ B. 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (i.e., Individual Filter Self-Assessment, IFSA).

Yes _____ No _____ C. 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months? **If yes**, complete the table on the reverse side of this form and indicate required follow-up action status (i.e., Comprehensive Performance Evaluation, CPE).

I certify under penalty of law that I have personally examined and am familiar with the data submitted in this MOR; that the data in this report is true, accurate and complete; and I am aware that falsification thereof could result in the imposition of fines and penalties including revocation of my certification as a public water system operator.

Name of Operator of Record and Certification Number	Signature of Operator of Record	Date
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