



Compliance Determination for Filtered Systems - Monthly Report

I. PWS INFORMATION:

PWSID#: H244001 PWS Name: RANDOLPH-HOLBROOK JOINT WATER PWS Town: RANDOLPH
Treatment Plant Name: RANDOLPH WATER PLANT Reporting Period -> Month: SEPTEMBER Year: 2018

II. TURBIDITY PERFORMANCE CRITERIA:

1. Monthly Turbidity (95%) NTU Limit - The turbidity level of a system's filtered water must be less than or equal to the Monthly Turbidity NTU Limit in at least 95% of the measurements taken each month for the filtration technology used, otherwise SWTR TT Violation (Tier 2).
180 = A Total # of filtered water turbidity measurements for month (SWTR - Form F)
180 = B Total # of filtered water turbidity measurements less than or equal to the specified limits for the filtration technology used.
100 = (B/A) x 100 The percentage of turbidity measurements meeting the Monthly Turbidity 95% NTU Limit.
2. Max Day NTU Limit - The turbidity level of a system's filtered water must at no time exceed the Max Day NTU Limit for the filtration technology used, otherwise SWTR TT Violation (Tier 2).
Record the date and turbidity value for any measurements exceeding the Max Day NTU. Check box [X] if "None"

III. DISINFECTION PERFORMANCE CRITERIA:

1. Point-of-Entry Minimum Disinfectant Residual Criteria - Residual Disinfectant concentration cannot be < 0.2 mg/L for more than 4 hours.
SWTR TT Violation (Tier 2).
Minimum Disinfectant Residual at Point-of-Entry to Distribution System:
Table with columns: Day, Cl2 mg/l, Day, Cl2 mg/l, Day, Cl2 mg/l, Day, Cl2 mg/l, Day, Cl2 mg/l, Day, Cl2 mg/l.
Residual Measured: [X] Free Cl2, [] Total Cl2, [] Combined Cl2.
If at any time the residual falls below 0.2 mg/l in the water entering the distribution system, the supplier of water must notify the Department as soon as possible, but no later than by the end of the next business day.

2. Distribution System Disinfectant Residual Criteria - Residual Disinfectant concentration (V) cannot be undetectable in greater than 5% of samples in a month, for any two consecutive months.
Total # of HPC samples taken during month: 58 # HPC sites > 500/mL: 0 # HPC sites <= 500/mL: 58
64 = a # of sites where Cl2 residual measurements were made, whether a residual was detected or not
0 = b # of sites HPC samples were analyzed instead of Cl2 residual measurements
46 = c # of sites where no Cl2 residual was detected and no HPC sample was analyzed
0 = d # of sites where no Cl2 residual was detected and HPC > 500 CFU/mL
0 = e # of sites where no Cl2 residual measurement was made and HPC > 500 CFU/mL
Water in the distribution system with a heterotrophic bacteria concentration (HPC) less than or equal to 500/mL, is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement.
V = (c+d+e)/(a+b) x 100 This Month % V = 0 Previous Month % V = 0 Is V > 5% for 1 months? [X] Yes or [] No

I certify under penalties of law that I am the person authorized 10/12/18 PWS Authorized Signature: William Corbett Chief Operator



TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

PWS INFORMATION

PWSID#: 14344001 PWS Name: RANDOLPH-HOLBROOK JOINT WATER PWS Town: RANDOLPH

Treatment Plant Name: RANDOLPH WATER PLANT Reporting Period -> Month: SEPTEMBER Year: 2018

REGULATORY REPORTING

Filtered Water Turbidity Measured: (check only one) [X] Combined Filter Effluent [] Individual Filter Effluent [] Clearwell [] Plant Effluent

Filtration Technology: [X] Conventional [] Direct [] Alternative [] Slow Sand [] Diatomaceous Earth Monthly Turbidity (95%) NTU Limit = 0.3 Max Day Turbidity NTU Limit = 1 Monthly Turbidity (95%) NTU Limit = 1 Max Day Turbidity NTU Limit = 5

Table with 4 columns: Day, Max Filtered Water Turbidity Result (NTU), Number of Turbidity Measurements, Number of Turbidity Measurements < Monthly (95%) NTU Limit, Number of Turbidity Measurements > Max Day NTU Limit. Includes a Totals row at the bottom.

- 1. May be used by systems serving less than 10,000 persons, subject to DEP approval.
2. Enter the Maximum Filtered Water Turbidity Result recorded each day, at the 4th hour or other approved interval.
3. Enter the Total # of Turbidity measurements taken for each day. Measurements must be taken at a minimum of 4-hour intervals (i.e. 6 readings per day).

PWS Authorized Signature: William Cookerby Date: 10-1-18 Title: Chief Plant Operator



Massachusetts Department of Environmental Protection - Drinking Water Program - SWTR
 CT Determination for Filtered Systems I

I. PWS INFORMATION:

PWSID#: 4244001 PWS Name: Randolph-Hollbrook Joint Water PWS Town: Randolph
 Treatment Plant Name: Randolph Water Plant Reporting Period → Month: SEPTEMBER Year: 2018
 Disinfectant: Chlorine Dioxide Filter Eff. Sequence of Application: 1st 2nd 3rd 4th 5 6^h

II. DAILY REPORTING: All measurements taken during peak hourly flow.

Day	Peak Hourly Flow ² (gpm)	Disinfectant Concentration ³ C (mg/L)	Disinfectant Contact Time ⁴ T (min.)	CT calc (= C x T)	pH ⁵	Water Temp ⁶ (°C)	CT _{99.9}	Inactivation Ratio ⁸ (CT calc / CT _{99.9})	Inactivation Ratio ⁹ < 1.0
1	2,600	2.01	50	100.5	6.04	23.6	11	9.1	<input type="checkbox"/> Yes
2	2,600	1.92	50	96	6.11	23.7	11	8.7	<input type="checkbox"/> Yes
3	2,600	1.78	50	89	6.15	23.9	11	8.1	<input type="checkbox"/> Yes
4	2,600	1.75	50	87.5	6.18	24.2	11	8.0	<input type="checkbox"/> Yes
5	2,600	1.87	50	93.5	6.20	23.3	11	8.5	<input type="checkbox"/> Yes
6	2,600	1.92	50	96	6.11	21.9	11	8.7	<input type="checkbox"/> Yes
7	2,600	1.34	50	67	5.88	20.9	11	6.1	<input type="checkbox"/> Yes
8	2,600	2.14	50	107	5.94	21.0	11	9.7	<input type="checkbox"/> Yes
9	2,600	2.12	50	106	5.98	20.8	11	9.6	<input type="checkbox"/> Yes
10	2,600	2.07	50	103.5	5.86	19.7	11	9.4	<input type="checkbox"/> Yes
11	2,600	2.03	50	101.5	5.86	20.2	11	9.2	<input type="checkbox"/> Yes
12	2,600	1.99	50	99.5	6.05	20.3	11	9.1	<input type="checkbox"/> Yes
13	2,600	2.01	50	100.5	6.15	19.3	11	9.1	<input type="checkbox"/> Yes
14	2,600	1.88	50	94	5.97	18.9	11	8.6	<input type="checkbox"/> Yes
15	2,600	1.96	50	98	6.11	19.8	11	8.9	<input type="checkbox"/> Yes
16	2,600	2.13	50	106.5	6.06	20.2	11	9.7	<input type="checkbox"/> Yes
17	2,600	1.79	50	89.5	6.18	20.1	11	8.1	<input type="checkbox"/> Yes
18	2,600	1.84	50	92	6.02	19.9	11	8.4	<input type="checkbox"/> Yes
19	2,600	1.84	50	92	5.82	19.2	11	8.4	<input type="checkbox"/> Yes
20	2,600	2.02	50	101	6.03	19.0	11	9.2	<input type="checkbox"/> Yes
21	2,600	1.96	50	98	6.07	18.1	11	8.9	<input type="checkbox"/> Yes
22	2,600	1.91	50	95.5	5.90	18.0	11	8.7	<input type="checkbox"/> Yes
23	2,600	2.06	50	103	5.88	17.5	11	9.4	<input type="checkbox"/> Yes
24	2,600	1.86	50	93	6.03	15.89	11	8.5	<input type="checkbox"/> Yes
25	2,600	1.08	50	54	5.91	16.4	11	4.9	<input type="checkbox"/> Yes
26	2,600	1.91	50	95.5	5.89	16.4	11	8.7	<input type="checkbox"/> Yes
27	2,600	2.01	50	100.5	6.04	16.0	11	9.1	<input type="checkbox"/> Yes
28	2,600	2.16	50	108	6.10	15.9	11	9.8	<input type="checkbox"/> Yes
29	2,600	2.16	50	108	5.90	16.5	11	9.8	<input type="checkbox"/> Yes
30	2,600	2.17	50	108.5	5.98	17.2	11	9.9	<input type="checkbox"/> Yes
31			50						<input type="checkbox"/> Yes

1. Use a separate form for each disinfectant/sampling point. Enter disinfectant and sequence position, e.g. "ozone/1st" or "ClO₂/3rd". If more than one disinfectant sampling point, you must also complete SWTR Form H and calculate the cumulative inactivation ratio SUM (CTcalc/CT99.9) to determine compliance.
2. Peak hourly flow means the highest pumpage hour during the day, not the absolute peak flow at any instant.
3. The residual disinfectant concentration(s) ("C") of the water before or at the first customer must be measured each day during peak hourly flow.
4. The disinfectant contact time(s) ("T") must be determined for each day during peak hourly flow. The time T used in calculating CT, is the time it takes the water, during peak hourly flow, to move between the point of disinfection application and the point at which the residual is measured.
5. If the system uses free chlorine, the pH of the disinfected water must be measured at least once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.
6. The temperature of the disinfected water must be measured at least once per day at each residual disinfectant concentration sampling point during peak hourly flow.
7. Use Inactivation Tables at 310 CMR 22.20A Tables 1.1 - 1.6, 2.1 and/or 3.1
8. The inactivation ratio (CTcalc/CT99.9) is determined before or at the first customer during peak hourly flow and if the (CTcalc/CT99.9) is < 1.0, the 99.9% *Giardia lamblia* inactivation requirement has not been achieved.
9. More than one "Yes" response above may indicate a SWTR Treatment Technique violation (Tier 2).

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

PWS Authorized Signature: William Cook
 Date: 10-1-18 Title: Chief Operator



CHEMICAL ADDITION REPORT - 310 CMR 22.15(4) Chemical Addition Reporting Requirements

PWS INFORMATION

PWSID#: 4244001 PWS Name: RANDOLPH-HOLBROOK JOINT WATER PWS Town: RANDOLPH
 Treatment Facility Name: RANDOLPH WATER PLANT Reporting Period → Month: SEPTEMBER Year: 2018

DAILY REPORTING

Chemical Name: PCH-180 Purchased Strength (%): Purchased Density:
 Manufacturer: HOLLAND Product Name:
 Reason for Adding Chemical: COAGULANT

Date	Treated Water (gallons)	Volume of Chemicals Used (liters/day) <input checked="" type="checkbox"/>	Chemical Dosage (lbs/day) ^a	Chemical Dosage (mg/L)	Water Quality Parameters, if applicable ^d				Comments: Note any equipment breakdown, changes in purchased product, or batch mixing day, etc.
					Residual (mg/L)	pH	Alk	Orho(PO ₄) (mg/L)	
2,712,000	158	1,627	23		7.18				
2,817,000	151	1,555	22		7.17				
2,865,000	142	1,463	20		7.20				
3,068,000	118	1,215	16		7.19				
3,068,000	136	1,401	18		7.23				
2,133,000	120	1,236	23		7.18				
2,648,000	122	1,257	18		7.16				PLANT DOWN/BASIN CLEANING
2,727,000	164	1,689	24		7.19				
2,724,000	177	1,823	26		7.26				
2,658,000	145	1,494	22		7.20				
2,723,000	144	1,483	23		7.15				
2,712,000	143	1,473	22		7.12				
2,694,000	147	1,514	22		7.10				
2,635,000	116	1,195	16		7.16				
2,641,000	130	1,339	20		7.22				
2,755,000	137	1,411	20		7.20				
2,764,000	132	1,360	19		7.24				
2,806,000	134	1,380	20		7.15				
2,717,000	139	1,432	21		7.08				
2,694,000	171	1,761	26		7.09				
2,826,000	132	1,360	19		7.12				
2,642,000	160	1,648	25		7.10				
2,764,000	164	1,689	24		7.18				
2,810,000	152	1,566	22		7.06				
2,723,000	148	1,524	22		7.10				
2,666,000	160	1,648	24		7.07				
2,648,000	154	1,586	24		7.19				
2,162,000	151	1,555	22		7.23				
2,980,000	144	1,483	20		7.24				
2,555,000	166	1,710	26		7.19				

- Notes:
1. A separate report is required for each chemical added for each facility.
 2. (lbs/ft³) for dry chemicals; (lbs/gal.) for liquid chemicals.
 3. Liquid fed system enter (L, or gal/day), dry fed system enter (lb/day)
 4. Enter the appropriate parameter that is monitored just downstream of chemical addition.

All chemicals added to drinking water must be approved by AWWANSF for use in potable water.

PWS Authorized Signature: Matthew Cook
 Date: 10-1-18 Title: Chief Plant Operator



CHEMICAL ADDITION REPORT - 310 CMR 22.15(4) Chemical Addition Reporting Requirements

FWPS INFORMATION

PWSID#: 4244001 PWS Name: RANDOLPH-HOLBROOK Jt. WATER PWS Town: RANDOLPH
 Treatment Facility Name: RANDOLPH WATER PLANT Reporting Period -> Month: SEPTEMBER Year: 2018

DAILY REPORTING

Chemical Name: CHLORINE Purchased Strength (%): Purchased Density:
 Manufacturer: JONES CHEMICAL Product Name:
 Reason for Adding Chemical: DISINFECTION

Treated Water (gallons)	Volume of Chemicals Used (liters/day) <input type="checkbox"/> gal/day <input type="checkbox"/>	Chemical Dosage (lbs/day) ³	Chemical Dosage (mg/L)	Water Quality Parameters, if applicable ⁴					Comments: Note any equipment breakdown, changes in purchased product, or batch mixing day, etc.
				Residual (mg/L)	pH	Alk	Ortho(PO ₄) (mg/L)	Other	
2,721,000		77	3.3	2.19	7.16				
2,819,000		76	3.3	2.14	7.20				
2,865,000		74	3.1	2.06	7.10				
3,063,000		75	2.9	1.95	7.15				
3,061,000		78	3.0	1.97	7.07				
2,132,000		54	3.1	2.09	7.03				
2,678,000		73	3.3	2.00	6.82				PLANT DOWN/BASIN CLEANING
2,787,000		81	3.5	2.25	6.99				
2,781,000		77	3.3	2.25	6.90				
2,659,000		70	3.1	2.24	7.00				
2,733,000		72	3.2	2.20	7.08				
2,712,000		70	3.1	2.14	6.98				
2,694,000		72	3.2	2.16	6.92				
2,635,000		71	3.3	2.15	6.96				
2,644,000		72	3.3	2.14	6.96				
2,753,000		70	3.0	2.20	6.99				
2,764,000		68	2.9	2.04	7.04				
2,806,000		70	3.0	2.08	6.98				
2,914,000		69	3.0	2.03	6.86				
2,692,000		73	3.3	2.16	6.89				
2,876,000		72	3.1	2.10	6.90				
2,642,000		69	3.2	2.18	6.96				
2,764,000		74	3.2	2.30	6.92				
2,810,000		72	3.1	2.19	6.95				
2,723,000		70	3.1	2.05	6.95				
2,666,000		69	3.1	2.12	6.93				
2,678,000		70	3.2	2.25	6.90				
2,167,000		60	3.3	2.25	6.93				
2,982,000		64	2.6	2.24	6.97				
2,653,000		66	3.1	2.27	6.95				

- Notes:
1. A separate report is required for each chemical added for each facility.
 2. (lbs/R³) for dry chemicals; (lbs/gal.) for liquid chemicals.
 3. Liquid fed system enter (L. or gal/day), dry fed system enter (lb/day)
 4. Enter the appropriate parameter that is monitored just downstream of chemical addition.

All chemicals added to drinking water must be approved by AWWANSF for use in potable water.

PWS Authorized Signature: William Cook
 Date: 10-1-18 Title: Chief Plant Operator



CHEMICAL ADDITION REPORT - 310 CMR 22.15(4) Chemical Addition Reporting Requirements

PWS INFORMATION

PWSID#: 1244001 PWS Name: RANDOLPH HOLBROOK JOINT WATER PWS Town: RANDOLPH
 Treatment Facility Name: RANDOLPH WATER PLANT Reporting Period → Month: SEPTEMBER Year: 2018

IDENTIFY REPORTING

Chemical Name: LIME Purchased Strength (%): Purchased Density:
 Manufacturer: BORDEN & REMINGTON Product Name:
 Reason for Adding Chemical: PH ADJUSTMENT

Date	Treated Water (gallons)	Volume of Chemicals Used (liters/day gal/day)	Chemical Dosage (lbs/day)	Chemical Dosage (mg/L)	Water Quality Parameters, if applicable				Comments: Note any equipment breakdown, changes in purchased product, or batch mixing day, etc.
					Residual (mg/L)	pH	Alk	Ortho(PO ₄) (mg/L)	
2/7/18	2,770,000		100	4.3		7.16			
2/8/18	2,817,000		100	4.3		7.20			
2/9/18	2,766,000		100	4.1		7.10			
2/10/18	3,068,000		100	3.9		7.15			
2/11/18	3,061,000		100	3.9		7.07			
2/13/18	2,132,000		100	4.3		7.03			
2/14/18	2,648,000		100	4.4		6.92			
2/15/18	2,727,000		100	4.3		6.99			
2/16/18	2,784,000		100	4.3		6.90			
2/17/18	2,659,000		100	4.4		7.00			
2/18/18	2,723,000		100	4.4		7.08			
2/19/18	2,712,000		100	4.4		6.98			
2/20/18	2,694,000		100	4.4		6.92			
2/21/18	2,635,000		100	4.6		6.96			
2/22/18	2,644,000		100	4.6		6.96			
2/23/18	2,753,000		100	4.3		6.99			
2/24/18	2,767,000		100	4.3		7.04			
2/25/18	2,806,000		100	4.3		6.98			
2/26/18	2,771,000		100	4.4		6.96			
2/27/18	2,692,000		100	4.4		6.89			
2/28/18	2,862,000		100	4.3		6.90			
2/29/18	2,642,000		100	4.6		6.96			
2/30/18	2,764,000		100	4.3		6.92			
3/1/18	2,810,000		100	4.3		6.95			
3/2/18	2,723,000		100	4.4		6.95			
3/3/18	2,666,000		100	4.4		6.93			
3/4/18	2,618,000		100	4.6		6.90			
3/5/18	2,162,000		100	5.5		6.93			
3/6/18	2,980,000		100	4.0		6.97			
3/7/18	2,555,000		100	4.6		6.95			

- Notes:
1. A separate report is required for each chemical added for each facility.
 2. (lbs/l) for dry chemicals; (lbs/gal.) for liquid chemicals.
 3. Liquid fed system enter (L, or gal/day), dry fed system enter (lb/day)
 4. Enter the appropriate parameter that is monitored just downstream of chemical addition.

All chemicals added to drinking water must be approved by AWWA/NSF for use in potable water.

PWS Authorized Signature: [Signature]
 Date: 10-1-18 Title: Chief Plant Operator



CHEMICAL ADDITION REPORT - 310 CMR 22.15(4) Chemical Addition Reporting Requirements

PWS INFORMATION:

PWSID#: 1244001 PWS Name: RANDOLPH-HOLBROOK JOINT WATER PWS Town: RANDOLPH
 Treatment Facility Name: RANDOLPH WATER PLANT Reporting Period -1 Month: SEPTEMBER Year: 2018

DAILY REPORTING:

Chemical Name: PHOSPHATE Purchased Strength (%): Purchased Density:
 Manufacturer: SHANNON CHEMICAL Product Name:
 Reason for Adding Chemical: CORROSION CONTROL

Treated Water (gallons)	Volume of Chemicals Used liters/day <input type="checkbox"/> gal/day <input type="checkbox"/>	Chemical Dosage (lbs/day) ¹	Chemical Dosage (mg/L)	Water Quality Parameters, if applicable ²					Comments: Note dry equipment breakdown, changes in purchased product, or batch mixing day, etc.
				Residual (mg/L)	pH	Alk	Ortho(PD) (mg/L)	Diter	
2770.00		50	2.2		7.14				
2812.00		50	2.2		7.20				
2865.00		50	2.1		7.10				
3068.00		50	1.9		7.15				
3061.00		50	1.9		7.07				
2132.00		50	2.0		7.03				
2148.00		50	2.2		6.92				
2727.00		50	2.2		6.99				
2784.00		50	2.2		6.90				
2609.00		50	2.2		7.00				
2723.00		50	2.2		7.08				
2712.00		50	2.2		6.98				
2694.00		50	2.2		6.92				
2635.00		50	2.3		6.96				
2644.00		50	2.3		6.96				
2735.00		50	2.2		6.99				
2764.00		50	2.2		7.04				
2806.00		50	2.2		6.98				
2744.00		50	2.2		6.86				
2692.00		50	2.2		6.89				
2826.00		50	2.2		6.90				
2642.00		50	2.3		6.96				
2764.00		50	2.2		6.92				
2810.00		50	2.2		6.95				
2723.00		50	2.2		6.95				
2666.00		50	2.2		6.93				
2680.00		50	2.3		6.90				
2162.00		50	2.7		6.93				
2480.00		50	2.0		6.97				
2533.00		50	2.3		6.95				

- Notes:
1. A separate report is required for each chemical added for each facility.
 2. (lbs/ft³) for dry chemicals; (lbs/gal.) for liquid chemicals.
 3. Liquid fed system enter (L or gal/day), dry fed system enter (lb/day)
 4. Enter the appropriate parameter that is monitored just downstream of chemical addition.

All chemicals added to drinking water must be approved by AWWANSF for use in potable water.

PWS Authorized Signature: Matthew Costello
 Date: 10-1-18 Title: Chief Plant Operator



DBPR TT Compliance Report

PWS INFORMATION

PWS ID #: 4244001 City/Town: RANDOLPH
 PWS Name: RANDOLPH-HOLBROOK DRINKING WATER PWS Class: COM NTNC TNC

DEP LOCATION LOG ID: 015/10300 DEP Location Name: Raw Water / Combined Filter Effluent Date Collected: 9-5-18 Collected By: Bill Conroy

COMPLIANCE CALCULATIONS

Month	# of Paired Samples	A: % Removal of TOC ¹	B: Required % Removal of TOC ²	Met Alternative Compliance Criteria	Alternative Criteria Result(s) ³ (See Below)	A+B ⁴
10-17	1	38	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.09
11-17	1	45	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.29
12-17	1	35	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.00
1-18	1	43	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.23
2-18	1	26	35	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	TWSUVA	1.00
3-18	1	46	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.31
4-18	1	42	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.20
5-18	1	53	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.51
6-18	1	53	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.51
7-18	1	55	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.57
8-18	1	46	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.32
9-18	1	42	35	<input type="checkbox"/> YES <input type="checkbox"/> NO		1.20
Sum of Past 12 Months:						15.23
Compliance Value (Sum of Past 12 Months/ 12):						1.27

Form 100-100-001-01-18, Rev. 10/18. This form is provided for informational purposes only. It is not intended to be used as a substitute for the regulations and other information contained in the Massachusetts Department of Environmental Protection's website.

PWS Authorized Signature: William Conroy
 Date: 10-9-18

Mail ONE copy of this report to your DEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner.

¹ Percent Removal: $(1 - (\text{Treated Water TOC} / \text{Raw Water TOC})) \times 100$. If > 1 paired sample sets in any month report the average of all individual percent TOC removals (Example: % TOC Removal = (Average of Set 1 + Average of Set 2) / 2).
² From table at 310 CMR 22.07E(10)(b)2.
³ As listed at 310 CMR 22.07E(10)(a)2 and 310 CMR 22.07E(10)(a)3, summarized as follows:

Alternative Compliance Criteria	Code Value	Result(s) to Report (RAA - Running Annual Average)
Source Water TOC < 2.0 mg/L	SWTOC	RAA of source water TOC
Treated Water < 2.0 mg/L	TWTOC	RAA of treated water TOC
Source Water TOC < 4.0 mg/L AND Alkalinity > 60 mg/L (as CaCO ₃) AND TTHM/HAA5 ≤ 0.040/0.030 mg/L	COMBO	RAA of source water TOC, RAA of source water alkalinity, RAA of TTHM and HAA5
TTHM/HAA5 ≤ 0.040/0.030 mg/L AND only using chlorine	TTHM/HAA5	RAA of TTHM and HAA5
Source Water SUVA ≤ 2.0 L/mg-m	SWSUVA	RAA of treated water SUVA
Treated Water SUVA ≤ 2.0 L/mg-m	TWSUVA	RAA of treated water SUVA
Filtering that lowers alkalinity to ≤ 60 mg/L (as CaCO ₃)	SOFT60	RAA of treated water alkalinity
Filtering that removes ≥ 10 mg/L (as CaCO ₃) of hardness	SOFT10	RAA of hardness (as CaCO ₃) removal

Note: All supplemental measurements and calculations used to meet the alternative criteria must be attached to this report.
 For any month where the system met an alternative compliance criteria a value of 1.0 may be inserted.

REVIEW STATUS (Initial & Date)
 Accepted Disapproved
 Review Comments

Massachusetts Department of Environmental Protection - Drinking Water Program

TOC

Total Organic Carbon Report

PWS Information: Please refer to your DEP Water Sampling Schedule (WQSS) to help complete this form.

PWS ID #: 4244001

City/Town: Holbrook

PWS Name: Randolph-Holbrook Joint Water Board

PWS Class: COM X NTNC NC

DEP location ID	DEP location name	Sample Information	Collected		Collected by	
			Date	Time		
A 013	Raw Water	<input type="checkbox"/> Multiple <input checked="" type="checkbox"/> Single	<input checked="" type="checkbox"/> Raw <input type="checkbox"/> Finished	09/05/2018	09:00	B. Cookerly
B 10300	Combined Filter Effluent	<input type="checkbox"/> Multiple <input checked="" type="checkbox"/> Single	<input type="checkbox"/> Raw <input checked="" type="checkbox"/> Finished	09/05/2018	09:00	B. Cookerly
Routine or Special Sample		Original or Resubmitted or Confirmation Report		If resubmitted report, list below:		
				Reason for resubmission		Collection date of original sample
A	<input checked="" type="checkbox"/> RS <input type="checkbox"/> SS	<input checked="" type="checkbox"/> Original <input type="checkbox"/> Resubmitted		<input type="checkbox"/> Resample <input type="checkbox"/> Reanalysis <input type="checkbox"/> Report Corr.		
B	<input checked="" type="checkbox"/> RS <input type="checkbox"/> SS	<input checked="" type="checkbox"/> Original <input type="checkbox"/> Resubmitted		<input type="checkbox"/> Resample <input type="checkbox"/> Reanalysis <input type="checkbox"/> Report Corr.		
Lab sample notes:						
A						
B						

II. Analytical Laboratory Information:

Primary Lab MA Cert. # M-MA022

Primary Lab name: Analytical Balance Corp.

Subcontracted? Y N

TOC analyzed by (check one): <input type="checkbox"/> PWS <input checked="" type="checkbox"/> Lab			Samples acidified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
TOC result (mg/L)	MDL (mg/L)	Lab Method	Date Analyzed	Analysis Lab MA Cert. #	Analysis Lab Name	Lab Sample ID #
A 5.6	0.5	SM 5310B	09/10/2018	M-R1002	ESS	28180-01
B 3.2	0.5	SM 5310B	09/10/2018	M-R1002	ESS	28189-02

Surface water or GWUDI systems > 500 persons

Monthly source (raw) water TOC samplings required at each surface/GWUDI source to qualify for and remain on reduced THM/HAA5 monitoring. Each source must maintain a running annual average source (raw) water TOC level of ≤ 4.0 mg/L (calculated quarterly). TOC analysis does not require the use of a Massachusetts or EPA certified laboratory.

Surface or GWUDI sources using conventional filtration shall each month (unless monitoring is reduced); take one TOC sample at each treatment plant no later than the point of combined filter effluent turbidity monitoring representative of the treated (finished) water, one source (raw) sample prior to any treatment, and one alkalinity source (raw) water sample - at a time representative of normal operating conditions and influent water quality. The time between collection of raw and treated (finished) water must not exceed the time it takes to move through the plant.

Alkalinity analyzed by (check one): <input type="checkbox"/> PWS <input checked="" type="checkbox"/> Lab						
Alkalinity result (mg/L as CaCO ₃)	MDL (mg/L)	Lab Method	Date Analyzed	Analysis Lab MA Cert. #	Analysis Lab Name	Lab Sample ID #
A 21.9	4	SM 2320B	09/13/2018	M-MA022	Analytical Balance	28180-01
B						

If using conventional filtration - raw water alkalinity must be measured at the same time as the raw water TOC sample is collected. Alkalinity analysis does not require the use of a Massachusetts or EPA certified laboratory.

Lab sample notes:						
A						
B						

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Robert E. Bentley

Digitally signed by Robert E. Bentley
CN=Robert E. Bentley
O=Analytical Balance Corp.
E=rob@h2otest.net

Primary Lab Director Signature/ Date: 09/19/2018

p. 1 of 1

If not submitting these results electronically, mail TWO copies of this report to your DEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner.

DEP REVIEW STATUS (Initial & date) Accepted _____ Disapproved _____	Review comments	WQTS data entered
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Environmental Chemistry
 Site Assessment
 Quality Assurance Services



Environmental Services
 Site Sampling
 Data Auditing

CERTIFICATE OF ANALYSIS

Richard Brewer
 Randolph-Holbrook Joint Water Board
 50 N. Franklin Street
 Holbrook, MA 02343
 COLLECTED BY: B. Cookerly
 TIME: 9:00
 LOCATION: Raw Water
 01S

REPORTED: 09/18/2018
 ORDER #: G1828181
 SAMPLE DATE: 9/5/2018
 DATE RECEIVED: 9/5/2018
 SAMPLE ID: Special
 DESCRIPTION: DRINKING WATER

RESULTS OF ANALYSIS

Parameter	Analytical Method	Date Analyzed	Units	Det. Limit*	MCL ¹ / Rec. Limit ²	Result
LAB-ID#: 1828181-01						
<i>Test Parameters</i>						
Carbon, Total Dissolved Organic	SM 5310B	09/10/2018	mg/L	0.5	---	5.3
SUVA	Calculation	09/14/2018	# per 100 mL	0	0	0.014
UV 254	SM 5910B	09/05/2018	Abs/cm	0.002	-----	0.074

Unless otherwise noted, all analyses were conducted by Analytical Balance Corp.(M-MA022).
 DOC & UV254 analyzed by sub contract lab M-R1002.

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Richard Brewer
 Randolph-Holbrook Joint Water Board
 50 N. Franklin Street
 Holbrook, MA 02343

COLLECTED BY: B. Cookerly
 TIME: 9:00
 LOCATION: Combined Filter Effluent
 10300

REPORTED: 09/18/2018
 ORDER #: G1828181
 SAMPLE DATE: 9/5/2018
 DATE RECEIVED: 9/5/2018
 SAMPLE ID: Special
 DESCRIPTION: DRINKING WATER

CERTIFICATE OF ANALYSIS

RESULTS OF ANALYSIS

Parameter	Analytical Method	Date Analyzed	Units	Det. Limit*	MCL ¹ / Rec. Limit ²	Result
				LAB-ID#:	1828181-02	
Test Parameters						
Carbon, Total Dissolved Organic	SM 5310B	09/10/2018	mg/L	0.5	---	3.5
SUVA	Calculation	09/14/2018	# per 100 mL	0	0	0.009
UV 254	SM 5910B	09/05/2018	Abs/cm	0.002	----	0.031

Unless otherwise noted, all analyses were conducted by Analytical Balance Corp.(M-MA022).
 DOC & UV254 analyzed by sub contract lab M-RI002.

NA = Not Applicable
 ND = Not Detected
 '<' = Less Than
 '*' = Detection Limit

Approved By: **Timothy A. Begley**
 Lab Manager / Date

Digitally signed by Timothy A. Begley
 DN: Timothy A. Begley
 2.5.4.11*
 Date: 2018.09.18 16:38:44

1. MCL = Maximum Contaminant Level as adopted by the Commonwealth of Massachusetts and represents the maximum acceptable level in drinking water.
2. Recommended limits are suggested levels of materials allowed in water. These may be for aesthetic reasons rather than for human health.
3. Currently there are no limits (recommended or mandated) for this parameter. This is merely presented for guidance.
4. If present, coliform values (in parentheses) are defined as estimated numbers.