### VIA EMAIL AND U.S. MAIL

Jonathan Goldberg, Chief Legal Counsel Department of Public Utilities One South Station Boston, MA 02110

December 15, 2020

RE: Letter of November 24, 2020,

Dear Attorney Goldberg:

Below are the set of questions with responses to your letter of November 24, 2020:

 All correspondence between the Company and the Town of Great Barrington ("Town") sent or received between January 1, 2020 and the present related to water quality issues on the Company's system.

Attached electronically and hard copy (Attachment A)

2. The Company's engagement letter with Cornwell Engineering Group as referenced on Slide 21 of the attached PowerPoint presentation, Housatonic Water Works Company, Informational Meeting, August 13, 2020 ("Attachment A").

Attached electronically and hard copy. (Attachment B)

3. All correspondence between the Company and Cornwell Engineering Group related to water quality issues on the Company's system.

Attached electronically and hard copy. (Attachment C)

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December 15, 2020

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Dear Attorney Goldberg:

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2. The Company's engagement letter with Cornwell Engineering Group as referenced on Slide 21 of the attached PowerPoint presentation, Housatonic Water Works Company, Informational Meeting, August 13, 2020 ("Attachment A").

Attached electronically and hard copy. (Attachment B)

3. All correspondence between the Company and Cornwell Engineering Group related to water quality issues on the Company's system.

Attached electronically and hard copy. (Attachment C)

4. A copy of the Company's two most recent sanitary surveys.

Attached electronically and hard copy. (Attachment D)

5. A copy of the Company's most recent Master Plan.

Hard copy only. (Attachment E)

6. A copy of the Company's emergency response plan that was in effect as of January 1, 2020, along with any updates or revisions made to the plan thereafter.

Attached electronically and hard copy. (Attachment F)

7. A list of the specific dates on which any flushing-related activities occurred (e.g., scheduled hydrant flushing, hydrant use from firefighting to training/testing activities, and other main breaks) on the Company's system between January 2015 and the present. See Slide 15 of Attachment A.

### Water Leaks:

| 4/22/2015  | Water leak/ South Street                          |
|------------|---|
| 4/22/2015  | Water leak repair/ Linda Lane                     |
| 5/5/2015   | Water leak repair/ 189 Division Street            |
| 6/22/2016  | Water leak repair/ VanDeusenville Road            |
| 8/8/2016   | Water leak repair / Route 183 north of village    |
| 8/10/2016  | Water leak repair/ second water leak on Route 183 |
| 8/22/2016  | Water leak repair/ Kirk and Main Street           |
| 8/22/2016  | Water leak repair/ North Street                   |
| 12/1/2016  | Water leak repair/ Main Street                    |
| 12/15/2017 | Water leak/ Wyantenuck Street                     |
| 1/12/2018  | Water leak repair/ 85 Division Street             |
| 4/2/2018   | Water leak repair/ South Street/Front Street      |
| 4/2/2018   | Water leak South Street/ Highland Street          |
|            |   |

7/13/2020 Water leak Ramsdell Road

8/27/2020 Rubin Mill Standpipe Test

Flushing Dates : April 10, 2017 – April 24, 2017

May 21, 2018 - May 31, 2018

August 1, 2018 - August 7, 2018

May 13-17, 2019 and May 20-24, 2019

May 11, 2020 - May 22, 2020

July 7, 2020 – July 17, 2020

### 8. Please confirm whether the Company flushed all water quality problem areas in its

distribution system twice per year. If not, please explain why.

The Company utilizes all hydrants and blow-offs whether company owned or privately owned. There are several private streets that do not have blow-offs and therefore cannot be flushed. In 2018 and 2020 when we had discolored water complaints we flushed the entire system twice.

### 9. A step-by-step explanation of the Company's flushing process.

### Response:

The company follows a hydrant flushing sequence for 79 hydrants and blow-offs throughout its system. This protocol has been followed for many years. The flushing is broken into three sections to effectively flush those sections of the system and minimize disruption to other parts of the system. The main trunk line from the source intersecting North Plain Road, Van Deusenville Road to Park Street on the southern part of the distribution system bring water from the source which is then drawn sequentially through areas that are divided into sections as described below. Flushing in each of the three sections is conducted to minimize disturbances; however, flushing in general can cause occasional disturbances in other sections of the distribution system.

Section I consists of the transmission main running from the reservoir to the Division Street/North Plain Road, extending to the West Stockbridge Williamsville area. Section II consists of the Van Deusenville Road/downtown core, and extends to the Stockbridge Furnace area, whereas Section III consists primarily of Park Street from Ramsdell Road on the south to the Park Street bridge in the north. When Section I is being flushed, the transmission line to Section II at the intersection of North Plain Road and Main Street is shut off to provide unidirectional flushing. Likewise, when Section II is flushed, the North Plain Road and Main Street valve is closed, and the valve line at the Park Street Bridge is closed. Similarly, Section III is isolated from Sections I and II. Blow offs on secondary streets in each section are conducted upon completion of the primary lines in each section.

Flushing is conducted until the water is clear in appearance. During July 2020 the flushing times typically ranged from a low of 15 minutes to a maximum of 2 hours on the hydrants with two blow offs which were bled at slow rate for 8-9 hours, while two problematic areas were flushed for up to 72 hours. Chlorine residuals were also monitored at each location. ( Attachment G)

10. Please confirm whether the Company notifies residents at least 24 hours in advance of all flushing activity, including the method of notification the Company uses. If not, please explain why.

The Company utilizes several methods to provide advance notice (24 hours +) when scheduling flushing. In addition to printing a notice on customers' bills, the Company also posts its flushing schedule on its website, Facebook and the Community Board, issues press releases to the local media. During emergency situations we use the town's CODE RED system to inform water customers. Attached are sample water bills / notices (Attachment H)

11. The Company's capital budget for the years 2015 through 2020, as well as the actual capital expenditures incurred in each of those years.

Attached electronically and hard copy. (Attachment I)

12. Please explain the presence of privately owned and privately maintained mains on the Company's system. See Slide 14 of Attachment A.

There are several privately owned streets and residents are responsible for the maintenance of those mains. Some do not have blow-offs which prohibits flushing, occasioning water quality issues in those sections.

### Private ways:

- 1. Brookside Court
- 2. Crimson Lane
- 3. Grant Lane
- 4. Wright Lane
- 5. Rachael's Way
- 6. Nolan Drive
- 7. Walnut Street
- 8. Spruce Street
- 9. Ramsdell Road

Please contact us if you should require further information.

Sincerely,

James J. Mercer

Treasurer

Cc: Via Website at <a href="https://www.townofgb.org/user/76/contact">https://www.townofgb.org/user/76/contact</a>

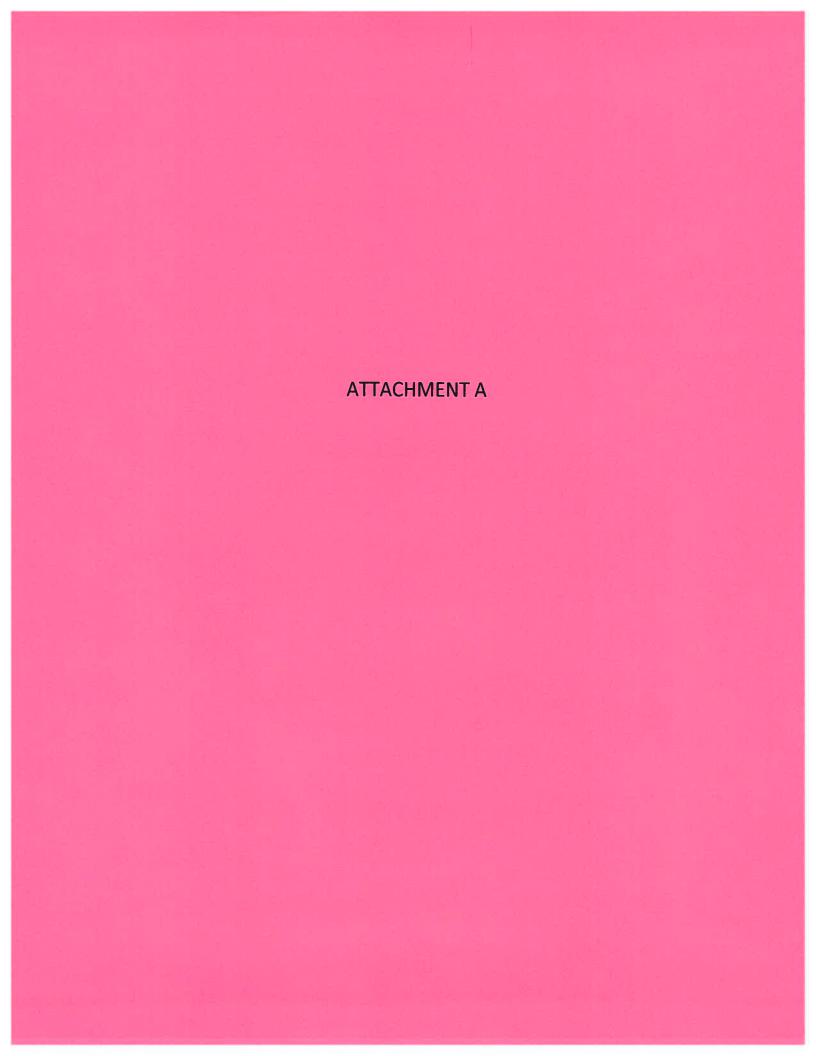
Mr. Stephen Bannon

Chair, Great Barrington Selectboard (email only)

William E. Martin, Esq.

wem@martinoliveira.com (email only)

enclosures





James J. Mercer < housatonicwater@gmail.com >

### **CODE RED**

1 message

James J. Mercer < housatonicwater@gmail.com >

Mon, Jul 6, 2020 at 12:10 PM

To: Amy Pulver <apulver@townofgb.org>

Cc: Mark Pruhenski <mPruhenski@townofgb.org>, William Walsh <wWalsh@townofgb.org>, Charles Burger <cburger@townofgb.org>, Rebecca Jurczyk <rjurczyk@townofgb.org>

Hi Amy,
Could you please run the following notice for us?
Thanks,
Jim

### **Hydrant Flushing**

During this warm weather we have experienced increased flows and reports of roily water in some sections of our service area. In an effort to alleviate this situation we will be flushing hydrants weekdays between July 7-17 during the hours of 9:00-11:00AM and 1:00-4:00PM.

There may be reductions in pressure and/or discolored water. While not aesthetically pleasing, the water is completely disinfected and safe to use; however, please take precautions regarding your laundry routine. Our flushing schedule is available at housatonicwater.com.



80 Maple Avenue, Suite1
Great Barrington, Massachusetts 01230
(413) 528-1780 phone
(413) 528-3024 fax
www.housatonicwater.com

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### James J. Mercer < housatonicwater@gmail.com>

### Zoom meeting invitation - GB/Housatonic Water

1 message

Mark Pruhenski < MPruhenski@townofgb.org>

Wed, Jul 15, 2020 at 1:29 PM

To: "Smitty.Pignatelli@mahouse.gov" <Smitty.Pignatelli@mahouse.gov>, Adam Hinds <Adam.Hinds@masenate.gov>, Jim Mercer <housatonicwater@gmail.com>, Buddy Atwood III <walteratwood@hotmail.com>

Mark Pruhenski is inviting you to a scheduled Zoom meeting.

Topic: GB/Housatonic Water

Time: Jul 20, 2020 11:00 AM Eastern Time (US and Canada)

Join Zoom Meeting

https://us02web.zoom.us/j/2359342512

Meeting ID: 235 934 2512

One tap mobile

- +13017158592,,2359342512# US (Germantown)
- +13126266799,,2359342512# US (Chicago)

Dial by your location

- +1 301 715 8592 US (Germantown)
- +1 312 626 6799 US (Chicago)
- +1 929 205 6099 US (New York)
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)
- +1 669 900 6833 US (San Jose)

Meeting ID: 235 934 2512

Find your local number: https://us02web.zoom.us/u/kbaYX5Cmz7

| 2 a | ttachments                    |
|-----|-------------------------------|
|     | <b>Zoom-Meeting.ics</b><br>2K |
|     | <b>ATT00001.c</b><br>1K       |



James J. Mercer <housatonicwater@gmail.com>

### May 11 2020 DEP Letter

1 message

James J. Mercer < housatonicwater@gmail.com > To: Mark Pruhenski < Mpruhenski@townofgb.org>

Mon, Jul 20, 2020 at 8:01 AM

Mark,

This letter to DEP summarizes the water quality from 2018 . I have a hard copy the data ( all provided to DEP )to back it up if you want.

Please let me know if you have any questions.

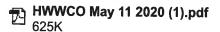
Thanks,

Jim



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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SINCE 1897

BY EMAIL AND CERTIFIED MAIL

Ms. Deidre Doherty

Massachusetts Department of Environmental Protection

Western Regional Office

436 Dwight Street

Springfield, MA 01103

May 11, 2020

RE: request to discontinue required special sampling program from August 3, 2018 Unilateral Order #00004151 (August 10, 2018)

Dear Ms. Doherty:

Over a year and a half ago, in late July and early August of 2018, our water system experienced a short-term water quality issue in the distribution system that resulted in some customer complaints. We communicated closely with MassDEP during this period, and the water quality issues were quickly resolved at that time. We are pleased to note that all of our related key water quality parameters continue to indicate a consistently excellent water quality.

As part of MassDEP's investigation regarding that water quality incident, on August 3, 2018 you directed our system to conduct water quality sampling in the area of disruption by no later than August 6, 2018, and to continue that sampling every two weeks indefinitely until further direction was provided by MassDEP. That sampling has continued through the present time.

We are respectfully requesting that this special sampling requirement now be discontinued. Please note that this request has no bearing on the regular required monitoring in the distribution system, including RTCR, D/DBPR, and LCR monitoring requirements, all of which of course would continue as required.

The August 3, 2018 directive required sampling every two weeks at four different locations (done at two sites one week, two different sites the following week, etc.), with analyses for eight different water quality parameters (field measurements for pH, turbidity, and chlorine residual, and lab measurements of color, iron, manganese, alkalinity, and total dissolved solids). According to the August 10, 2018 Unilateral Order which repeated that directive, the "results are expected to assist MassDEP in further understanding the system and any potential water quality issues."

80 Maple Avenue, Ste I Great Barrington, MA 01230

Tel: 413.528.1780
Fax: 413.528.3024
E-mail: housatonicwater@gmail.com
www.housatonicwater.com

Our request to discontinue the special sampling program that started in August 2018 is based on the following factors:

### 1. The original issue was resolved in 2018:

 The original water quality issue was a transient short-term event that was resolved in August 2018. Further, the water looked clear when MassDEP staff met with customers and inspected the system on August 9, 2018. We flushed the distribution system shortly after then and have received no customer complaints related to this issue since the flushing.

### 2. The data collected show excellent distribution system water quality:

 Over 150 distribution samples have been collected since August 2018 as part of this special sampling program and were analyzed for the required eight parameters. The resulting data have shown each of the monitored water quality parameters to be quite consistent, and to be well under their respective Secondary Maximum Contaminant Levels (see table below), with few exceptions. For example, none of the iron or manganese samples were above those respective SMCLs.

### Distribution System Water Quality Data for 8/22/18 to 3/16/20\*

| Parameter              | Secondary Maximum Contaminant Level (SMCL) | # samples over<br>SMCL         | Total # of samples analyzed |
|------------------------|--|--------------------------------|-----------------------------|
| Color                  | 15 color units                             | 3 (none since<br>October 2018) | 152                         |
| pH                     | 6.5 to 8.5                                 | 1 (at 8.7)                     | 154                         |
| Iron                   | 1.3 mg/L                                   | 0                              | 154                         |
| Manganese              | 0.05 mg/L                                  | 0                              | 152                         |
| Total dissolved solids | 500 mg/L                                   | 0                              | 154                         |

- \* Combined data from four sites:
  - Race Property (377 N. Plain Rd., Great Barrington, MA 01230)
  - Berkshire Meadows (249 N. Plain Rd., Great Barrington, MA 01230)
  - Pleasant and Main Café (1063 Main St., Housatonic, MA 01236)
  - Park Street Housing Authority (2 Bernard Gibbons Dr., Great Barrington, MA 01230)
- Distribution system turbidity results were also outstanding, as most results were < 0.04</li>
   NTU, and all turbidity results were ≤ 0.5 NTU (total of 154 measurements).
- The chlorine residual has been maintained at the required levels (total of 150
  measurements), and results have become steadier after the dedicated line from the
  clearwell to the 1-million gallon storage tank was installed.
- Alkalinity ranged from 68 to 92 mg/L (as CaCO₃), with only sample result outside that range (total of 154 samples).

### 3. The water treatment plant continues to produce excellent finished water:

- As indicated by all of our water quality data, including that submitted to MassDEP via the Monthly Operating Reports, the treatment plant continues to consistently produce a high-quality water supply.
- Operational control of chlorine residuals has improved with the installation of the new treatment plant piping arrangement, and both the finished water chlorine residuals and distribution system chlorine residuals are quite steady.

### 4. Sampling objectives have been met:

 We believe that ample data have been provided for MassDEP's evaluation, and that MassDEP's original objectives for requiring this special distribution system sampling have been met. The data collected have repeatedly shown no water quality issues over the past year and a half, and in fact indicate a very consistent and excellent water quality.

### 5. Sampling concerns in light of the ongoing coronavirus pandemic:

Lastly, but very important, considering the potential exposure to the coronavirus, this
continued special sampling requirement exposes sampling staff and customers to each
other, and we do not believe that we should be entering customers' premises without
strong cause to do so.

We would appreciate your response as soon as possible, so that we can discontinue this special sampling during the current period of recommended physical isolation during the coronavirus pandemic outbreak.

Thank you very much for your thoughtful consideration. We would be glad to discuss the data and our related observations with your staff if you'd like.

Sincerely,

James J. Mercer

Treasurer and Certified Operator

Cc: via e-mail

Brian Harrington, MassDEP

Robert Cox, Esq.

Richard Gullick, PhD, Water Compliance Solutions, LLC



James J. Mercer < housatonicwater@gmail.com>

### **MADEP Correspondence**

1 message

James J. Mercer < housatonicwater@gmail.com>

Mon, Jul 20, 2020 at 12:17 PM

To: Mark Pruhenski <MPruhenski@townofgb.org>, SMITTY PIGNATELLI <smitty.pignatelli@mahouse.gov>, Adam Hinds <adam.hinds@masenate.gov>

Bcc: Jim Ericson <ericson@lenard-eng.com>, "William E. Martin" <wem@martinoliveira.com>

Hi,

Thank you all for meeting this morning. Attached is the letter that our engineer emailed MADEP this morning.

Any support that could be provided to help expedite the process would be greatly appreciated.

Thank you,

Jim



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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### Lenard Engineering, Inc.

2210 Main Street P.O. Box 1088 Glestonbury, CT 06033 Tel: 860 659-3100 Fax: 860 659-3103 www.lenard-eng.com

1348 Conantville Road P.O. Box 580 Suite 8
Storrs, CT 06268 Winsted, Tel: 860 429-5400 Tel: 860 Fax: 860 429-1387 Fax: 860

140 Willow Street Suite 8 Suite 200 Winsted, CT 06098 Auburn, MA 01501 Tel: 860 379-6669 Fax: 860 738-1272 Fax: 508 721-7610

Civil, Environmental and Hydrogeological Consultants

July 20, 2020

Ms. Deidre Doherty
Mass DEP - Drinking Water Program
Springfield Regional Office
436 Dwight Street
Springfield, MA 01103

RE: Intent to Modify Chemical Feed Application for Blended Phosphate for Iron Pipe Corrosion Control, Long Pond Water Treatment Plant, Housatonic Water Works, Great Barrington, MA; LEI Project # 20-370

Dear Ms. Doherty:

The Housatonic Water Works Company has asked Lenard Engineering, Inc. (LEI) to re-evaluate our previous BRP WS – 34 Chemical Feed Addition Retrofit application that was previously submitted to optimize lead and copper control. Since the time of that application, even without the recommended pH adjustment and blended phosphate addition, the HWW system has obtained compliant lead and copper levels.

The Housatonic Water Company has made me aware of a recent discolored water event this summer, where rusty water occurs in areas of the distribution system, thought to be from the leaching of unlined iron water mains. A recent aggressive flushing program has helped to remedy most of these discolored water areas.

Our previous chemical addition design for lead and copper corrosion control included both pH adjustment, as well as feeding of a blended phosphate, Carus 8600, which has a 70 % orthophosphate / 30 % polyphosphate blend. As given in our Basis of Design report, in addition to the benefits of orthophosphate on lead and copper control, utilizing a blended phosphate product containing polyphosphate has the added benefit to helping to minimizing tuburculation of unlined cast iron pipe, as well as to minimize the leaching of iron mains.

To help control the periodic rusty water issues associated with unlined iron water mains in the distribution system, LEI will be modifying our previous BRP WS – 34 application, to feed only the liquid blended phosphate product. Over time, this product should help reduce iron releases and discolored water from the unlined iron water mains. The orthophosphate portion of the chemical will also contribute to forming a film on customer service lines and plumbing, and should further help to optimize lead and copper corrosion control.

An Equal Opportunity Employer



### Lenard Engineering, Inc.

Civil, Environmental and Hydrogeological Consultants

Ms. Deidre Doherty July 20, 2020

I look forward to working with you and your staff in the near future, to get these designs approved and ready for implementation. If you or others at DEP have any questions or comments, please contact me.

Respectfully submitted, Lenard Engineering, Inc.

James E. Ericson, PE

Vice President

Cc: Jim Mercer, Housatonic Water Works



James J. Mercer <housatonicwater@gmail.com>

### Water Information

1 message

James J. Mercer < housatonicwater@gmail.com > To: Mark Pruhenski < MPruhenski@townofgb.org>

Fri, Jul 24, 2020 at 4:27 PM

FYI



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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### 4 attachments



HWWCO June 2020 .pdf



HWWCO May 2020 .pdf 2344K



HWW 2019 CCR .pdf



**HWWCO Testing Schedule.pdf** 



### Massachusetts Department of Environmental Protection - Drinking Water Program CHEMICAL ADDITION REPORT - 310 CMR 22:15(4) Chemical Addition Reporting Requirements

| 4. nem Lemittim                   | I III           | ısatonic V            | Vater Wor          | ks                                  | dance and instructions" for data           |   | MARKET N. P. LEWIS  |  |  |  |  |  |
|-----------------------------------|-----------------|-----------------------|--------------------|-------------------------------------|--|---|---|--|--|--|--|--|
| Treatment Plan Name <sup>2</sup>  |                 | Long                  |                    |                                     | Town                                       |   | PWSID <sup>1</sup> :  |  |  |  |  |  |
| Deline                            |                 |                       |                    | A 10 - 1                            | Treatment Plant IDS                        | 1113  | Month <sup>3</sup>  |  |  |  |  |  |
| Chemical & O                      | perational info | rmation               | 1177               |                                     |  |   | Reporting Year <sup>3</sup> :   | 2020                                     |  |  |  |  |
| hemical Nume                      |                 | sodium hyp            | ochiorite          |                                     | Purchased Strength (%)*:                   | 12.5  | 1   | arget Range/min <sup>ti</sup> :          |  |  |  |  |
| Manufacturer*:                    | Slack Chemic    | a) Compan             | y, Inc. (Ca        | rthage, NY)                         | Purchased Density (Iba/gal) <sup>8</sup> : | 9.97  |   | get Dose (mg/L) <sup>13</sup> :          | THE PROPERTY OF  |  |  |  |
| Product Name*:<br>ason for Adding | and the second  |                       |                    |                                     | Dilution Factor or Mix Ratio 18:           | 1.00  |   | rm Setting (low) (L                      | NA<br>0.60   |  |  |  |
| Chemical <sup>7</sup> :           | Disinfection    | - Segment             | #1 and Se          | gment #2                            | NSF Approved (Y/M)11:                      | Y   |   | m Setting (high) <sup>14</sup> :         | 2.50   |  |  |  |
| Daily Reporti                     | ng              | Not                   | at Winter mus      | ility data saco                     | ded on C ADD from                          | ete of last anti-nip  | non valve inspect   | ion/replacement <sup>18</sup> :          | NA NA  |  |  |  |
| 13.42                             | STANK YES       |                       |                    | Distance of                         | ried on C-ADD form may also be             | considered for co   | Militares Militare  | Q SAN A                                  |  |  |  |  |
| Day                               | Treated Water   |                       | d Chemical<br>and  | Calculated                          |  | Parametera Mee<br>(G)rub  | sured", Results, U<br>or Continuous (A):                                | nits and Method -<br>Myser <sup>25</sup> | O&M Notes Comments   |  |  |  |
|                                   | Volume (gal)**  | Volume<br>(gal/qay)** | Weight (lbaiday)** | Chamical<br>Used (Bu) <sup>18</sup> | Chemical Dosage (mg/L)**                   | a. chlorine<br>residual at end of<br>Sogment 1 (mg/L)<br>via Kuntze<br>anelyzer | b. Chlorine recidual at end of Segment 2 POE (mg/L) via Kunaze analyzer | a  | PWS note any equipment brasildown, off-one stati<br>changes in purchased product or batch morns day<br>measured percentains or disages that are out<br>farget range, sic.  |  |  |  |
| 1000                              | 110021          | 23                    |                    | 2.87                                |  |   | DG 🖾 A  | □G □A                                    |  |  |  |  |
| 2                                 | 107436          | 23                    |                    | 2.87                                | 31   | 1,68  | 1,41  |  |  |  |  |  |
| 3                                 | 115990          | 23                    |                    | 2.87                                | 3.2  | 1,39  | 1,38  |  |  |  |  |  |
| 1-4-5-6-1                         | 136606          | 2.3                   |                    | 2.87                                | 2.5  | 2,07  | 1,48  |  |  |  |  |  |
| 8                                 | 115308          | 2.3                   | _                  | 2.87                                | 3.0  | 2.01  | 1,39  |  |  |  |  |  |
| 6                                 | 115294          | 2.3                   |                    | 2:87                                | 3.0  | 1,57  | 1,35  |  |  |  |  |  |
| 7                                 | 113051          | 2.3                   | -                  | 2.87                                | 3.0  | 1.46  | 1,28  |  |  |  |  |  |
| 8                                 | 121256          | 2.3                   |                    | 2.87                                | 28   | 2.14  | 1,34  |  |  |  |  |  |
| 9                                 | 133900          | 2.3                   | -                  | 2.87                                | 2.6  | 1,54  | 1.45  |  |  |  |  |  |
| 10                                | 127423          | 23                    |                    | 2.87                                | 2.7  | 1.50  | 1.36  |  |  |  |  |  |
| 11                                | 108346          | 2.3                   |                    | 2.87                                | 32   | 1.94  | 1.25  |  |  |  |  |  |
| 12                                | 116413          | 2.3                   |                    | 2.87                                | 3.0  | 2.13  | 1.12  |  |  |  |  |  |
| 13                                | 114530          | 2.3                   |                    | 2.87                                | 3.0  | 1.52  | 1.15  |  |  |  |  |  |
| 14                                | 124210          | 2.3                   |                    | 2.87                                | 28   | 1.89  | 1.24  |  |  |  |  |  |
| 15                                | 129189          | 2.3                   |                    | 2.87                                | 27   | 1,97  | 1,30  |  |  |  |  |  |
| 16                                | 126570          | 2.3                   |                    | 2.87                                | 2.7  | 1.45  | 1.30  |  |  |  |  |  |
| 17                                | 135823          | 2.3                   |                    | 2.87                                | 2.5  | 1.71  | 1.30  |  |  |  |  |  |
| 18                                | 122676          | 2.3                   |                    | 2.87                                | 2.8  | 1.74  | 1.17  |  | The state of the s |  |  |  |
| 19                                | 134848          | 2.3                   |                    | 2.87                                | 2.6  | 1,44  | 1.10  |  |  |  |  |  |
| 20                                | 151483          | 2.3                   |                    | 2.87                                | 23   | 1,46  | 1.76  |  |  |  |  |  |
| 21                                | 149539          | 2.3                   |                    | 2.87                                | 23   | 1,13  | 1.08  |  |  |  |  |  |
| 22                                | 158135          | 2.3                   |                    | 2.87                                | 22   | 1.02  | 1.22  |  |  |  |  |  |
| 23                                | 142513          | 2.3                   |                    | 2.87                                | 2.4  | 1.02  | 1.51  |  |  |  |  |  |
| 24                                | 113370          | 23                    |                    | 2.87                                | 3.0  | 1.18  | 1.30  |  |  |  |  |  |
| 26                                | 128707          | 23                    |                    | 2.87                                | 2.7  | 2.75  | 1.01  |  |  |  |  |  |
| 28                                | 125827          | 2.3                   | 2                  | 2.87                                | 2.7  | 0.90  | 1.02  |  |  |  |  |  |
| 27                                | 111964          | 2.6                   | 1                  | 3.24                                | 3.5  | 0.29  | 1,90  |  |  |  |  |  |
| 28                                | 108196          | 26                    | 100                | 3,24                                | 3.6  | 1.71  | 1.40  |  |  |  |  |  |
| 29                                | 104782          | 2.6                   | 4                  | 3.24                                | 3.7  | 2.54  | 1.41  |  |  |  |  |  |
| 30                                | 101638          | 2.3                   | 2                  | 2.87                                | 3.4  | 3.65  | 1.84  |  |  |  |  |  |
| 10000                             |                 |                       | 100                | Anna la                             |  |   |   |  |  |  |  |  |
| Total                             | 3702839         | 69.9                  | In                 | dicate total # o                    | f days the residual was off-target to      | r the month (from S   | Section II) Monthly   | Tarpet                                   |  |  |  |  |

form and the information contain the best extent of my knowledge \*Describe result (deily average, min/max, instantaneous reading, grab, etc.) sample location (entry-point, before/after filters, tanks, etc. and instrumentation used (SCADA, chart recorder, test kit, bench, etc.)<sup>20</sup>

Chlorine is monitored continuously via a Kuntze enalyzer. Daily chlorine residual values provided are for the average value during the hour of peak hourly flow. Chlorine is monitored continuously via a Kuntze enalyzer. Daily chlorine residual values provided are for the average value during the hour of peak hourly flow. Signature & Date Print Name Titte: Submit to your MassDEP Regional Office within 10 days after the reporting month.

Men 7/8/2020

**Primary Certified Operator** 



### Massachusetts Department of Environmental Protection - Drinking Water Program TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

**SWTR** 

| PWSID#: | 1113003 P                           | WS Name: Housatonic Wa                        |   |   |
|---------|-------------------------------------|---|---|---|
|         |                                     | WS Name: Housatonic Wa                        | ter Works                               | PWS Town: Great Barrington                                      |
| Treat   | ment Plant Name:                    | Long Pond                                     | Reporting Period → Month:               | June Year 2020  |
| # DAKE  | EFORING.                            |   |   | June Year: 2020   |
|         | Water Turbidity Measured:           |   |   |   |
|         |                                     | (check only one)                              | luent   Individual Filter Effluent      | Clearwell Plant Effluent  |
|         | tration                             | tional Direct Alternative                     | Monthly Turbidity (95%) NTU Limit = 0.3 |   |
| Tech    | nnology:                            | ind Diatomaceous Earth                        | Monthly Turbidity (95%) NTU Limit = 1   | Max Day Turbidity NTU Limit = 1 Max Day Turbidity NTU Limit = 5 |
|         | Max Filtered Water                  |   |   |   |
| Day     | Turbidity Result <sup>2</sup> (NTU) | Number of Turbidity Measurements <sup>3</sup> | Number of Turbidity Measurements        | Number of Turbidity Measurements:                               |
|         | 0.043                               |   | ≤ Monthly (95%) NTU Limit <sup>4</sup>  | Max Day NTU Limit <sup>5</sup>                                  |
| 2       | 0.043                               | 6   | 6                                       | 0   |
| 3       | 0.049                               |   | 6                                       | 0   |
|         | 0.047                               | 6   | 6                                       | 0   |
| 5       | 0.040                               | 6   | 6                                       | 0   |
|         | 0.055                               |   | 6                                       | 0   |
|         | 0.050                               | 6   | 6                                       | 0   |
| 8       | 0.043                               |   | 6                                       | 0   |
|         | 0.041                               | 6   | 6                                       | 0   |
| 100     | 0.047                               | 6   | 6                                       | 0   |
|         | 0.048                               | 8   | 6                                       | 0   |
| 12      | 0.049                               | 6   | 6                                       | 0   |
|         | 0.043                               |   | 6                                       | 0   |
|         | 0.042                               | 6   | 8                                       | 0   |
| 113     | 0.041                               | 6   | 6                                       | 0   |
| 16      | 0.041                               | 6   | 6                                       | 0   |
| 17      | 0.041                               |   | 6                                       | 0   |
| 18      | 0.044                               | 6   | 6                                       | 0   |
| 19      | 0.039                               |   | 6                                       | 0   |
| 20      | 0.048                               | 6   | 6                                       | 0   |
| 21      | 0.054                               | 6   | 6                                       | 0   |
| 22      | 0.042                               | 6   | 6                                       | 0   |
| 23      | 0.043                               | 6   | 6                                       | 0   |
| 24      | 0,040                               | 6   | 6                                       | 0   |
| 25      | 0.054                               | 8   | 6                                       | 0   |
| 26      | 0.041                               | 6   | 6                                       | 0   |
| 20      | 0.041                               | 6   | 6                                       | 0   |
| 28      | 0.040                               | 6   | 6                                       | 0   |
| 29      | 0.045                               | 6   | 6                                       | 0   |
| 30      | 0.041                               | 6   | 6                                       | O   |
|         |                                     | Ţ .   | 6                                       | 0   |
|         |                                     |   |   |   |
|         | Totals:                             | 180   | 180                                     | % Turbidity Meeting 95% Limit<br>B/A x 100 % = X                |
|         |                                     | A   | 8                                       | (Enter on SWTR Form G)  |

- 1. May be used by systems serving less than 10,000 persons, subject to DEP approvat.
- 2. Enter the Maximum Filtered Water Turbidity Result recorded each day, at the 4<sup>th</sup> hour or other approved interval.
- 2. 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). For continuous monitors count each 4-hour period as 1 measurement. Record the actual turbidity result at the specified interval of time. Do not average turbidity measurements. If DEP approved, 15-minute readings (i.e. 96 readings per day) may be submitted. Filtered turbidity data must be kept on file for DEP review.
- 4. Out of the # of turbidity measurements taken and recorded in the previous column, enter the number of turbidity measurements that were less than or equal to the Monthly (95%)
- 5. If at any at time the filtered turbidity Mex Day NTU Limit is exceeded, the DEP must be notified no later than the end of the next business day. For each exceedance, record the

| I certify under penalties of law that I am the person          | 0 12                       |
|--|----------------------------|
| authorized to fill out this form and the information contained | Pres Authorized Signature: |
| herein is true, accurate and complete to the best extent of    | The Men                    |
| my knowledge.  | Peder = /- /               |
| W  | Primary Certified Operator |

in accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no letter than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is

### Massachusetts Department of Environmental Protection - Drinking Water Program Massachusetts Department of Environmental Protection - Difficing COMPLIANCE DETERMINATION FOR FILTERED SYSTEMS - Monthly Report

SWTR

| _  | CN   |   |  |  |   |  | The same of the sa | -  | -   | -  |  |                                       |   | 177    |
|--|--|---|--|--|---|--|--|--|---|--|--|---------------------------------------|---|--------|
| ID#:   | 111300   | 1   |  | PWS Nam  | 0:  | Hou  | satonic Wa   | or Works   | STATE OF THE PARTY          |  | DIAM T   |                                       |   | Į,     |
|  | Plant Name   |   | 4000   | Long Po  | nd  |  | 7  |  | ng Period:  | ⊒<br>Month:  | PWS Town   | _                                     | Great Horne   | _      |
| REIDITYPER   |  | - Carrier   | A  |  |   |  |  | cehniti  | ų Репоц:  | Month:   | June   | Ye                                    | ar: 2020  |        |
| Monthly measurer   | Turbidity (  | 95%) NTU<br>each mon  | Limit - The  | turbidity le   | vel of a sys  | tem's filter   | ed water mu  | st be less   | than or equa  | al to the M  | ontly Turbidi  | ty NTU Li                             | mit in at least   | 959    |
| 180  |  | -A  |  |  |   |  |  |  | ATR - Form  | F)   |  |                                       |   |        |
| 180  |  | - B   | Total:   | # of filtered<br>R - Form F  | water turbi   | dity measu   | rements les  | s than or e  | qual to the   | specified li   | mits for the   | filtration te                         | chnology use  | d.     |
| 100,00%  | = (B/  | A) X 100  | The p  | ercentage (  | of turbidity n  | neasurem   | ents meeting   | the Monti  | nly Turbidity   | 95% NTU  | Limit.   |                                       |   |        |
| 2. Max D:<br>SWTR  | ay NTU Lin   | nit - The tu<br>n (Tier 2).   | rbidity level  | of a system  | n's filtered v  | water mus  | at no time   | exceed the   | Max Day N   | TU Limit fo  | or the filtratio   | on technol                            | ogy used, oth   | erwi   |
|  | R  | ecord the   | date and tu  | rbidity value  | for any me  | asuremer   | ts exceedin  | g the Max  | Day NTU.  | ☑ Chec   | k box if "No   | ne"                                   |   |        |
| Date   | V  | aiue  | Date   | Reported   | to DEP  | 37455  | THE PARTY  | 15 1/2   | Date  | 1815 V   | alue   | Date                                  | Reported t  | DE     |
|  | +  |   | <b>-</b>   |  |   |  |  |  |   |  |  |                                       |   | -      |
|  |  |   | -  |  |   |  |  |  |   |  |  |                                       |   | _      |
| For each day the 24 hours then it  | a May De -   | ATTLES  |  |  |   | 2002   | No.  | L  |   |  |  |                                       |   |        |
| Point-of-E<br>SWTR TT  |  | um Disinf   | ectant Res   |  |   |  |  |  | not be <0.2   |  | nore than 4 i  | hours.                                |   | nti    |
|  | Lo   |   | Mini   | mum Disin  | fection Re  | sidual at i  | Point-of-End   | ry to Dist   | ribution Sys  | stoen.   | No.  | ESSEX NO.                             | 14 THE  |        |
| Day<br>1   | Cl <sub>2</sub> mg/t.  | Day   | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L  | Day  | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L  | Day  | Cle mg/L   | Day                                   | Cla mg/L  | E S    |
|  |  | 6   | 1.20   | -11  | 1.08  | 16   | 1.20   | 21   | 0.96  | 26   | 0.80   | 31                                    |   |        |
| 2 1.30 7 1.14 12 1.09 17 1.12 22 1.07 27 1.01 Residuel Measured  |  |   |  |  |   |  |  |  |   |  | Measured   | to the                                |   |        |
|  |  |   |  |  | 1 124   | 40   | 1  | THE RESERVE  |   | Acres de la companya del companya de la companya del companya de la companya de l |  |                                       |   |        |
| 4 20   | 1.32   | 9   | 1.31   | _  | 1.21  | 18   | 1.04   | 23   | 1.20  | 28   | 0.99   | Ø                                     | Free Cl <sub>2</sub>  |        |
| 5  | 1.24   | 9   | 1.31   | 14   | 1.20  | 19   | 1.02   | 24   | 1.15  | 29   | 1.30   |                                       | Total Cl <sub>2</sub>   |        |
| If at any time the   | 1.24<br>residual fa  | 9<br>10<br>lis below 0  | 1.31<br>1.16   | 14<br>15   | 1.20<br>1.21  | 19   | 1.02   | 24<br>25   | 1.15<br>0.84  | 29<br>30   | 1.30<br>1.51   |                                       | Total Cl <sub>2</sub>   | eud no |
| If at any time the later than by the restored to at les  | 1.24<br>residual fa<br>end of the<br>ast 0.2 mg/L  | 9<br>10<br>Ils below 0<br>next busine<br>within four  | 1.31<br>1.16<br>2 mg/L in thess day. Ther hours.   | 14<br>15<br>he water en<br>ne supplier (   | 1.20<br>1.21<br>Itering the dof water also  | 19   | 1.02   | 24<br>25<br>supplier or  | 1.15<br>0.84  | 30<br>notify the   | 1.30<br>1.51<br>Department<br>iness day w  | Cot as soon a thether or              | Total Cl <sub>2</sub><br>ambined Cl <sub>2</sub><br>as possible, b<br>not the residu  | nsy M  |
| If at any time the<br>later than by the<br>restored to at lea  | 1.24<br>residual far<br>end of the last 0.2 mg/L   | 9<br>10<br>Ils below 0<br>next busine<br>within four  | 1.31<br>1.16<br>2 mg/L in thess day. Ther hours.   | 14<br>15   | 1.20<br>1.21<br>Itering the dof water also  | 19   | 1.02   | 25<br>supplier or<br>riment by :   | 1.15<br>0.84<br>f water must<br>the end of th   | 30<br>notify the<br>e next bus   | 1.30<br>1.51   | Cot as soon a thether or              | Total Cl <sub>2</sub>   | naj w  |
| If at any time the later than by the restored to at les (s) Residual <   | 1.24<br>residual fa<br>end of the<br>ast 0.2 mg/L  | 9<br>10<br>Ils below 0<br>next busine<br>within four  | 1.31<br>1.16<br>2 mg/L in thess day. Ther hours.   | 14<br>15<br>he water en<br>ne supplier (   | 1.20<br>1.21<br>Itering the dof water also  | 19   | 1.02   | 25<br>supplier or<br>riment by :   | 1.15<br>0.84<br>( water must<br>the end of the  | 30<br>notify the<br>e next bus   | 1.30<br>1.51<br>Department<br>iness day w  | Cot as soon a thether or              | Total Cl <sub>2</sub><br>ambined Cl <sub>2</sub><br>as possible, b<br>not the residu  | naj w  |
| If at any time the later than by the restored to at lea (a) Residuel < 0.2 mg/L  Distribution any two con recept same                | 1.24 Presidual fa end of the last 0.2 mg/t  Duration Level  n System D secutive maples. If no  | 9 10 Its below 0 next busines within four of Low (hrs.) Disinfectan onths. SW residual is   | 1.31 1.16 2. mg/L in the sas day. The hours. Date I  | 14<br>15<br>he water en<br>supplier of<br>Reported to  | 1.20 1.21 Itering the dof water als   | 19<br>20<br>istribution<br>o must not  | 1.02<br>1.05<br>system, the<br>ary the Depa  | 24 25 supplier or atment by the control of the cont | 1.15<br>0.84<br>f water must<br>the end of the<br>tesichasi <   | 30<br>notify the<br>e next bus<br>Duratio  | 1.30<br>1.51<br>Department<br>iness day w  | Cot as soon whether or                | Total Cl <sub>2</sub><br>ambined Cl <sub>2</sub><br>as possible, b<br>not the residu  | DE3    |
| If at any time the later than by the restored to at lea (s) Residuel < 0.2 mg/l.  Distribution any two con                           | 1.24 Presidual fa end of the last 0.2 mg/t  Duration Level  n System D secutive maples. If no  | 9 10 Its below 0 next busines within four of Low (hrs.) Disinfectan onths. SW residual is   | 1.31 1.16 2 mg/L in these day. The hours.  Date I  It Residual TIR TI Vio detected, as ing month:  | 14<br>15<br>the water ene supplier of<br>Reported to<br>Criteria - F<br>lation (Tier<br>n HPC sam  | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20- istribution o must not sinfectant o e residuals e collected   | 1.02 1.05 system, the dip the Depa   | 24 25 supplier or imment by the continuent by th | 1.15 0.84 f water must the end of the tesidual < mg/L  of the undetest the same til   | 30 anothly the enerch bus burstlook Level  | 1.30 1.51 Department inness day was a of Low (hrs.) rester than ation as told  | Cot as soon a shether or Date         | Total Cl <sub>2</sub> probined Cl <sub>2</sub> as possible, to not the residu  Reported to  uples in a mod  distribution g                | DES    |
| If at any time the later than by the restored to at lea (a) Residuel < 0.2 mg/L  Distribution any two con recept same                | 1.24 Presidual fa end of the last 0.2 mg/t  Duration Level  n System D secutive maples. If no  | 9 10 ils below 0 next busine, within four of Low (fire.) Disinfectan onths, SW residual is a taken duri                             | 1.31 1.16 2 mg/L in these day. The hours.  Date !  It Residual TIR TT Viol detected, a ing month:  # of site:  | 14<br>15<br>the water ene supplier of<br>Reported to<br>Criteria - Fation (Tier<br>n HPC sam   | 1.20 1.21 ttering the coff water also DEP Residual Dis 2). Chloring the coff water also DEP | 19 20- istribution o must not must not e residuals e collected   | 1.02 1.05 system, the any the Department of the  | 24 25 supplier or timent by the continent by the continen | 1.15 0.84  f water must the end of the the end of the   | 29 30 notify the enext bus Duration Level  | 1.30 1.51 Departmentiness day was a of Low (hrs.) rester than ation as told  | Cot as soon a shether or Date         | Total Cl <sub>2</sub> probined Cl <sub>2</sub> as possible, to not the residu  Reported to  uples in a mod  distribution g                | DE3    |
| If at any time the later than by the restored to at lea (s) Residuel < 0.2 mg/L.  Distribution any two con recept sam  Total # of Hi | 1.24 Presidual fa end of the rast 0.2 mg/L Duration Level  In System Dissecutive miples. If no   | 9 10 lis below 0 next busines within four within four of Low (thre.)  Disinfectan contracts. SW residual is a taken duri            | 1.31 1.16 2 mg/L in the residual in the Residual in TR TT Viol detected, as ing month: \$\psi\$ of siter (should) \$\psi\$ of siter.   | 14 15 he water er esupptier of the supptier of           | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20- istribution o must not o must not sinfectant o e residuals e collected dessurement reported o nalyzed m   | 1.02 1.05 system, the Depa concentration in must be must be must be mand analyzed. HPC sites its were man your month stead of Cl <sub>2</sub>  | 24 25 supplier or oftment by the continuent by t | 1.15 0.84  f water must the end of th  tesidual < mg/L  of be undete the same ti  er a residual Ct <sub>2</sub> residual  | 29 30 notify the enext bus ctable in green and loc was detecreport)  | 1.30 1.51 Departmentiness day was a of Low (hrs.) rester than ation as told  | Cot as soon a shether or Date         | Total Cl <sub>2</sub> probined Cl <sub>2</sub> as possible, to not the residu  Reported to  uples in a mod  distribution g                | DES    |
| If at any time the later than by the restored to at lea (a) Reaktual < 0.2 mg/L  Distribution any two con recept sam  Total # of Hi  | 1.24  residual fa end of the rast 0.2 mg/L  Duration Level  n System D  ssecutive mmples. If no PC samples   | 9 10 Ils below 0 next busine within four of Low (hre.)  Disinfectan onths. SW residual is taken duri                                | 1.31 1.16 2 mg/L in thes day. The hours.  Date I  t Residual TR TT Violetted, as ing month:  # of sites # of sites   | 14 15 he water ene supplier of           | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20: istribution o must not o m | 1.02 1.05 system, the any the Department of the  | 24 25 supplier of street by it to be a continued by it to be a continued by the continued b | 1.15 0.84  f water must the end of the the end of the the the same time time the same time the same time the same time time the same time time time time time time time ti  | 29 30 notify the enext bus ctable in green and loc was detecreport)  | 1.30 1.51 Departmentiness day was a of Low (hrs.) rester than ation as told  | Cot as soon a shether or Date         | Total Cl <sub>2</sub> probined Cl <sub>2</sub> as possible, to not the residu  Reported to  uples in a mod  distribution g                | DES    |
| 5   f at any time the later than by the restored to at least   (a) Residuel < 0.2 mg/L   | 1.24 Presidual fa end of the east 0.2 mg/L Duration Level  In System D Issecutive mmples. If no PC samples   | 9 10 lis below 0 next busine. within four of Low (thre.)  Disinfectan onths. SW residual is a taken duri                            | 1.31 1.16 2 mg/L in the sast day. The rhours.  Date If Residual TR TT Viol detected, as ing month:  # of sites # of sites # of sites   | 14 15 the water ene supplier of the supplier o           | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20- istribution o must not o must not sinfectant o e residuals e collected a e collected a assurement reported o nalyzed m was deter was deter was deter  | 1.02 1.05 system, the Depa concentration must be mand analyzed HPC sites into were man in your month steed of Cl <sub>2</sub> cited and no cited and HP  | 24 25 supplier or of the thick  | 1.15 0.84  f water must the end of the testiduel < mg/L  of the undete the same firer a residuel Ct <sub>2</sub> residuel ressurementile was analytically market and the same the testiduel ressurementile was analytically must be the testiduel testiduel ressurementile was analytically must be the testiduel | 29 30 notify the enert bus | 1.30 1.51 Departmentiness day was a of Low (hrs.) rester than ation as told  | Cot as soon a shether or Date         | Total Cl <sub>2</sub> probined Cl <sub>2</sub> as possible, to not the residu  Reported to  uples in a mod  distribution g                | DES    |
| 5   If at any time the later than by the restored to at least(a) Reaktuel < 0.2 mg/L   | 1.24 Presidual fa end of the rast 0.2 mg/L Duration Level  Dissecutive mmples. If no PC samples  = 1  = 0  = 0   | 9 10 Ils below 0 next busine. within four of Low (thre.)  Disinfectan onths. SW residual is taken duri                              | 1.31 1.16 2 mg/L in the say day. The rhours.  Date If Residual TR TT Viole detected, a ring month:  # of sites | 14 15 16 water en e supplier of the supplier o           | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20- istribution o must not o must not sinfectant o e residuals e collected a pasurement reported o nalyzed in was deter was deter measurem  | 1.02 1.05 system, the department of the departme | 24 25 supplier or offment by the continent by the contine | 1.15 0.84  f water must the end of the testiduel < the testidu          | 29 30 notify the enert bus | 1.30 1.51 Department inness day was a of Low (firs.)  reater than astion as told.  HPC sites :   | ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ | Total Cl <sub>2</sub> combined Cl <sub>2</sub> as possible, to not the residu  Reported to  | DES    |
| If at any time the later than by the restored to at lea (a) Reaktual < 0.2 mg/L  Distribution any two con recept sam  Total # of Hi  | 1.24  Presidual fa end of the rast 0.2 mg/L  Duration  In System D  System D  System D  C  Serroles. If no receive a complex of the race o | 9 10 Ils below 0 next busine within four of Low (hre.)  Disinfectan onths. SW residual is taken duri                                | 1.31 1.16 2 mg/L in these day. The hours.  Date I  t Residual TR TT Violetted, as ing month:  # of sites # of sites # of sites # of sites  | 14 15 he water en e supplier of the water en e supplier of the same s where cl <sub>2</sub> be the same s where no s whe | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20: istribution o must not o must not e residuals e collected analyzed in was deter was deter measurem  | 1.02 1.05 system, the any the Deparation of the  | 24 25 supplier of street by it of the control of th | 1.15 0.84  f water must the end of the the end of the the the same time of the same time of the same time of the same time.   | 29 30 notify the enext bus Duration Level  ctable in g me and loc  # was detected report) ts yzed  | 1.30 1.51 Department interest day was of £ow (hrs.) reater than ration as told   | ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ | Total Cl <sub>2</sub> combined Cl <sub>2</sub> as possible, to not the residu  Reported to  | DES    |
| 5   f at any time the later than by the restored to at least   (a) Residuel < 0.2 mg/L   | 1.24 Presidual fa end of the rast 0.2 mg/L  Duration Level  Dissecutive maples. If no PC samples  = 1  = 0  = 0  X 100   | 9 10 Ils below 0 next busines within four of Low (thre.)  Disinfectan onths. SW residual is taken duri a  with a heterines with the | 1.31 1.16 2 mg/L in these day. The hours.  Date I  t Residual TR TT Violetted, as ing month:  # of sites # of sites # of sites # of sites  | 14 15 he water en le supplier of le            | 1.20 1.21 1.21 1.21 1.21 1.21 1.21 1.21   | 19 20- istribution o must not o must not e residuate e residuate e collected a easurement may a deter was deter was deter measurem HPC) less report HPC  | 1.02 1.05 system, the any the Deparation of the  | 24 25 supplier or oftment by the continent by the contine | 1.15 0.84  f water must the end of the the end of the the the same time of the same time of the same time of the same time.   | 29 30 notify the enext bus Duration Level  ctable in g me and loc  # was detected report) ts yzed  | 1.30 1.51 Department interest day was a of Low (firs.)  rester than action as told the control of the control o | ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ | Total Cl <sub>2</sub> mibined Cl <sub>2</sub> as possible, to not the residual replies in a mod distribution g int residual for 2 months? | DES    |

In accordance with 310 CMR 22.15(2), if maiting paper reports, TWO copies of this report must be received by your MassDEP Regional Office no latter than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP)

. PWG INFORMATION:

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

More than 1 Disinfectant / Sampling Point

SWTR I

| PWS ID#           | 1113003                  | PWS Name:     | THE STREET   | Housatonic Water Works   | Works  | PWS Town:  |  | Greet Barrington   |
|-------------------|--------------------------|---------------|--|--|--|--|--|--|
| Treatment F       | Treatment Facility Name: | Long Pand     | Ayesty.  | Reporting Period   | Reporting Period: Month: June  | Year: 2020   |  |  |
| IL DAILY RE       | PORTIVA;                 |               |  |  |  |  |  |  |
|                   |                          | Distinfectant | Secuence (GT   | on (GT only / CT so d)   |  |  |  |  |
| Cay               | 1st                      | Snd           | 3rd  | 46   | - AS   | 48   | Inteptivation Refio SUM  | Inectivation Ratio   |
|                   | 10.1                     | 42.2          |  |  |  |  | C1 0810 / C1 89.9)   | K10  |
| 2                 | 9.2                      | 40.8          | September 11 September 1   | New Street, St | The second secon |  | 62.3   |  |
| 8                 | 12.6                     | 42.2          |  |  |  | March Control of the Control   | 60.1   |  |
|                   | 18.4                     | 340           | The state of the s |  |  |  | 54.8   |  |
| 2                 | 10.8                     | 443           |  |  | THE PERSON NAMED IN  | Man Statement Statement  | 47.3   | BEST CONTRACTOR STANDARD TO SECONDARD  |
| 1 Sept 8 19 miles | 9.6                      | 30.6          | 行作はかとなると思想   | The second second second   | The state of the s |  | 64.9   |  |
| 7                 | 14.8                     | 39.1          |  |  | The state of the s | Manual Strategy of the Strateg | 100 P. C.  |  |
| 8                 | 11.0                     | 3.45          | CHILD SE SECTION OF SECTION OF   | Contraction of the last  |  |  | 63.6   |  |
| 6                 | 10.8                     | 33.7          | and the same of  |  |  | THE REACTIVE STATES SELECTION  | 48.4   |  |
| 10                | 14.1                     | 38.5          | THE RESERVE THE PARTY OF THE PA | Section and a second   |  |  | 44.7   |  |
| 1-                | 13.5                     | 28.0          |  |  | HOLL BANGE (NO. 741)   |  | 62.7   |  |
| 12                | 119                      | 200           |  |  |  |  | 49.6   |  |
| 13                | 12.2                     | 40.5          |  |  | Medical Control of the Control of th | The State of the last of the l | 61.7   |  |
| 14                | 16.0                     | 7 86          | The state of the state of  |  |  |  | 62.7   |  |
| 15                | 11.6                     | 37.0          |  | 25 T 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2   |  | 報の世紀を記録  | Company of 14 contracts  | 一 のでは、 ののは、 ののは、 ののは、 のののは、 のののは、 のののは、 のののは、 のののは、 のののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 のののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 のののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 ののののは、 のののののは、 ののののは、 ののののは、 ののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 ののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 ののののは、 ののののは、 のののののは、 ののののは、 ののののは、 ののののは、 ののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののは、 のののののののは、 のののののののの   |
| 16                | 11,9                     | 78E           | THE PARTY NAMED AND PARTY.   |  |  |  | 49.4   |  |
| 17                | 13.8                     | 27.8          | TOTAL MENTAL PROPERTY.   | THE PERSON SECTION   | The state of the s | STATE  | 100 TO 10 | AND SELECTION OF THE PROPERTY OF S   |
| 18                | 13.0                     | 30,3          | Mary Mary State  | ALTH A MISSISSING COMPANY  | CHARLES OF STREET, STR |  | 41.6   |  |
| 19                | 10.9                     | 34.2          |  |  |  | THE CANADISTICATION OF THE PERSON OF THE PER | 48.3   |  |
| 8                 | 10.5                     | 27.7          | STATE THE SHAME  | CAN ALTERNATION IN COMPANY   | State of the state | The state of the s | 45.1   |  |
| 77                | 10.0                     | 36.7          |  |  |  | OCCUPACION OF THE PROPERTY OF THE PERSON OF  | 200  | THE RESIDENCE THE PARTY OF THE  |
| 7 8               | 2.5                      | 808           |  |  | STATE STATE STATE OF THE STATE OF  | The state of the state of  | 40.1   |  |
| 200               | 200                      | 43.5          |  |  |  |  | 0.00   | THE RESERVE AND THE SECOND SEC |
| 25                | 210                      | 54.9          |  |  | MANAGEMENT OF THE PARTY OF   | September 1  | GR G   |  |
| 2                 | 0.12                     | 35.6          |  |  |  |  | Re F   |  |
| 3,5               | A C                      | 5,85          | ALC: COMMUNICATION   | R PROME SUBSECTION   | はのはいのはある   | Charles of the last  | 200  |  |
| 96                | 3.5                      | 71.8          |  |  |  |  | 74.0   |  |
| 900               | 70'                      | 64.2          | CONTRACTOR OF THE PARTY OF THE  |  | THE PROPERTY OF THE PARTY OF   | PARTICIPATION OF THE PARTY OF T | 900  |  |
| 87                | 50.4                     | 66.7          |  |  |  |  | 0.10   |  |
| 96                | 24.0                     | 81,6          |  | Many Parket  | The second second  | Committee and Committee  | 148.4  |  |
|                   |                          |               |  |  |  |  |  |  |
|                   |                          |               |  |  |  |  |  |  |

PWS Authorized Signature: I certify under penalties of itsw 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 rity knowledge.

Primary Certified Operator

Fax: 413-528-3024 413-528-1780

Email:

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

To determine SUM (CT calc/CT 98.9), add (CT calc/CT 98.9) values from the first disinfectant sequence to the last from SWTR - Form I.
 The inactivation ratio (CT calc / CT 98.9) is determined before or at the first customer during peak hourly flow and if the SUM (CT calc / CT 98.9)
 A Yes\* response above indicates a SWTR Treatment Technique violation.

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|                        |                          |                                       |                       |                   | Inactivation Ratio                     |      | Sed Torm I | L IIII L DOG | H mod see | tee from U | San Form H | See Form H | Hamp San | See Form H | See Forn H | See Form H | Bee Form H | See Form H | see Form H | Fee rom H | Comp Language  | Part Com Li | L amos   | See Form H                            | see Form L | See Form H | see Form Li  | Man Form M          | Soo Form H | see Form H        |
|------------------------|--------------------------|---------------------------------------|-----------------------|-------------------|--|------|------------|--------------|-----------|------------|------------|------------|----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|----------------|-------------|--|---------------------------------------|------------|------------|--|---------------------|------------|-------------------|
| Great Barrington       |                          | 1 5th [] 6th                          |                       |                   | Inactivation Ratio                     | 49.9 | 907        | 49.9         | 34.0      | 44.3       | 30.6       | 39.1       | 37.6     | 33.7       | 38.6       | 36.0       | 39.8       | 40.6       | 38.4       | 37.9       | 23.4       | 81,8       | 94.3       | 27.7      | 7887           | 30.8        | 63.5   | 64.9                                  | 35.6       | 39.5       | 71.6   | 64.2                | 68.7       | 91.8              |
|                        | Year                     | c 🗆 3r 🗀 4th                          | TOTAL PROPERTY        |                   | C1,                                    | 28   | 28         | 28           | 28        | 25         | 2.6        | 25         | 26       | 24         | 24         | 23         | 23         | 23         | 23         | 23         | 23         | 77         | 21         | 21        | 21             | 20          | 20   | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 18         | 18 1911    | 48   | 18                  | 18         | 50                |
| PWS Town:              | No.                      | □ 1st ☑ 2nc                           |                       |                   | Water Temp <sup>6</sup> (CC)           | 180  | 18.2       | 18.3         | 18.4      | 18.7       | 18.3       | 18.8       | 19.      | 19.3       | 19.3       | 19.6       | 10.7       | 19.9       | 200        | 20.2       | 205        | a Ca       | 212        | 21.1      | 21.8           | 221         | 22.6   | 23.1                                  | 23.6       | 28.6       | 23.7   | 23.9                | 23.8       | 23.7              |
| MI SONS III            | l: Month:                | ctent Application                     |                       |                   | Ŧ                                      | 7.34 | 7.34       | 7.35         | 7.33      | 7.33       | 7.33       | 734        | 7.35     | 7.34       | 7.34       | 7.32       | 7.34       | 7.35       | 7.00       | 7.00       | 7.35       | 7.86       | 7.35       | 7.34      | 7.33           | 7.32        | 7.34   | 7.34                                  | 7.35       | 7.36       | 7.40   | 7.40                | 7.41       | 7.48              |
| Housatonic Water Works | Reporting Period:        | Sequence of Disinfectant Application: |                       |                   | CT Calc<br>(=C x T)                    | 1117 | 1065       | 1108         | 24        | 1107       | 32         | 974        | 929      | 813        |            | 621        | 0.00       | OCC.       | RAB        | 784        | 809        | 848        | 714        | 674       | 758            | 200         | 865  | 1023                                  | 129        | 260        | 1393   | THE PERSON NAMED IN | 1230       | TIM.              |
|                        | Long Pond                | nt 2 - storage fank effluent (POE)    | speak hourly flow.    |                   | Disinfectant Contact Time* T (min.)    | 783  | 773        | 750          | 625       | gra        | 2000       | 97)        | 000      | 180        | 100        | 201        | 723        | 640        | 683        | 185        | 518        | 687        | 615        | 630       | 511            |             | 2000   | 100 CO                                | 210        | 200        | 75   | 922                 | 0/8        | a) a              |
| ] PWS Name             | THE PERSON WE            | Segmen                                | Suraments taken durin | Disinfectant      | Concentration <sup>3</sup><br>C (mg/L) | 141  | 200        | 04:          | 1,00      | 3          | 72.        | YF.        | 52       | 36 F       | 1 12       |            | 24         | 130        | 1.30       | 130        | 1517       | 110 Period | 1.16       | 80        | 600            | 1 84        | The state of the s | 101                                   | 600        | 180        | 4.40   | 1 44                | 4.84       | ACT OF THE PERSON |
| 1113003                | Treatment Facility Name: | Disinfectant <sup>1</sup> .           | AEPORTHOLA I Inve     | Peak Houdy Elver? | (mdB)                                  | 118  | 767        | 070          | 117       | 161        | 127        | 140        | 157      | 127        | 124        | 120        | 124        | 140        | 131        | 154        | 171        |            | 948        | 170       | AND 1800 CONT. | 184         | 163  | 143                                   | 704        | 127        | The state of the s | 100                 | 3          |                   |
| MS ID#                 | Tre                      |                                       | N NOW                 |                   | Dely                                   | - 6  | 1 00       |              | 9         | 8          | -          | 8          |          | 9          | =          | 12         | 13         | 100        | 5          | 9          | 12         | 0 5        | 2 8        | 3 2       | 22             | 23          | 24   | 25                                    | 28         | 12         | 8  | 8                   | 30         | П                 |

1.Use a separate form for each distribution point. Enter distribution and sequence position, e.g. "Ozonod!"—or "CIO\_/3"—If more than one distribution sampling point, you must also complete BWTR form H and calculate the summissive inactivation ratio SUM.

(CT cat-CTO 69 9) to determine compliance.

2. Peat house highest promystes the highest peat for the absolute peat flow at eny fusion.

3. The restalkual destriction concernations for the water before or at the first customer must be insecured each day during peat hourly flow.

4. The distriction concernation for the point at which the cash day during peat hourly flow. The time it takes the worter, during peat hourly flow, to move between the point of distriction and the point at which the

restant enseaved

The bystem rest set chieffie, the dishifteded water must be measured at least once per day at each chiefine readual dishiftedant concentration sampling point during peak hourly then.

The bringehands with must be measured at least once per day at each restand dishiftedant concentration sampling point during peak hourly flow.

The bringehands of shifted and stocked 22.20, Tables 11 - 18, 2.1 and/er, 3.1

The hourly flow.

The bringehands of the dishifted water or at the first outstoned during peak hourly flow and if the ratio is 4.10, the \$0.5% Glands isn't first flow.

The inspectors allowed Note: Add log credits for watershood & filtration to the numerator of fluschrabon ratio.

A Trial response above indexines as SWTR. Trainment Technique vicinity with vicinity of fluschrabon ratio.

Title: Primary Certified Operator

Email: housatonicwater@gmail.com person sufficiency briefles of leav thest 1 am the person sufficient to the form and the person sufficient to the form and the form and the person sufficient to the fost security from any contribution or making the fost security. The copies of this report must be received by your Mass DEP Regional Office no later than 10 days after the end of the month in which the results are

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|      | 7     |

Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

SWTR

|                  |                         |   |                      |              | Inactivation Ratio                      |                    | Li mod Com      |
|------------------|-------------------------|---|----------------------|--------------|---|--------------------|-----------------|
| 921706           |                         | # - 5th - 6th   |                      |              | Inactivation Ratio                      | (S) Carri () 33.3) | 10.1            |
| 0.0              | Year 2020               | 3.0   | Mary William Age     |              | CT,                                     |                    | 23              |
| PWS Town         | June                    | ☑ 1st □ 2m  |                      |              | Water Temp <sup>8</sup>                 |                    | 181             |
|                  | Month                   | ant Application:  |                      |              | PHS                                     |                    | 6.92            |
| into Water Works | Reporting Period        | Sequence of Disinfectant Application: 🗷 1st 🗆 2nc 🖂 3rd 🗀 4th 🗀 5th 🗀 6th |                      |              | CT Calc<br>(=C×T)                       |                    | 235             |
| Housen           | ng Pond                 | well (tap in 200-ft lang pipe)  | peak hourly flow.    |              | Distrifectant Contact Time*<br>T (min.) | 7.10               | 140             |
| PWS Name         | g                       | Segment 1 - post clear  | tements taken during | Disinfectant | Concentration <sup>3</sup><br>C (mg/L)  | 1 88               | 3 5             |
| 1113003          | Treatment Facility Name | Disinfectant <sup>1</sup> S   | EPORTING: All mass   |              | Peak Hourly Flow<br>(gpm)               | 152                | (A) (1) (A) (A) |
| PWS ID#          | Tream                   |   | LDALYR               |              | Day                                     | -                  | 2               |

| Inactivation Ratio                  | 2.17                                      | 588 Form H  | See Form H | see Form H    | see Form H | See Form H                            | See Form H             | 69e Form H   | 6ee Form H   | see Form H                                | H mod feat                              | see Form H   | see Form H | 888 Form H                | Bas Form H            | see Form H                                    | see Form H                                | see Form H   | see Form H          | See Form H | See Form H | see Form H   | 888 Form H | see Form H         | see Form H | see Form H   | Bee Form H | see Form H   | 668 Form H   | See Form M                            | Bee Form H      |
|-------------------------------------|---|---|------------|---------------|------------|---------------------------------------|------------------------|--|--|---|---|--|------------|---------------------------|-----------------------|---|---|--------------|---------------------|------------|------------|--|------------|--------------------|------------|--|------------|--|--|---------------------------------------|-----------------|
| Inactivation Ratio                  | (S. S. S | 10.1  | B.2        | 12.6          | P 202 13.4 | 10.6                                  | THE PERMIT WASTER COLD | 14.6   | THE RESERVE OF THE PARTY OF THE | 10.9                                      | The second of the second                | 13.6   |            | 12.2                      | A STATE ON LABOUR DE  | 11.6  | のでは、 ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ | 13.8         | FILE 19913.000 FEB. | 10.9       | 10.5       | 10.0   | B.2        | 9.6                | 011        | 21.0   | 8.9        | 3.2  | The state of the s | 20.4                                  | 24.8            |
| CT,                                 |   | 23  | 22         | 25            |            | 72                                    | 2                      | 24   | S. William S. N. S. S. S. S.   | 17  | 2                                       | 22   |            | 21                        | TO THE REAL PROPERTY. | 80  | THE WAY TO SELECT                         | 20           | 8                   | 18         |            |  | 200        | 2                  | 0          | 9  | 10         | 14   | 100000   | 18                                    | MANUAL PROPERTY |
| Water Temp <sup>a</sup>             |   | 181   | 18.0       | 18.0          | 182        | 18.4                                  | 18.6                   | 18.7   |  | 701                                       | D N N N N N N N N N N N N N N N N N N N | 0.00   | D I        | 198                       | 000                   | 0.00  | 20.                                       | 202          | 20                  | 20.7       | 20.5       | 117  | 2000       | 0.77               | 400        | 434  | 40.4       | 73.1   | 440  | 23.2                                  | 777             |
| ₽¥.                                 |   | 6.92  | 28.0       | 6.83          | 583        | 0.03                                  | C C C C                | 60   | 000  | 800                                       | 200                                     | 080  | 2000       | S CO                      | 000                   | 8   | 6,69                                      | 699          | 200                 | 200        | 800        | 000  | 00 8       | 800                | 100        | 010  | 200        | 0 00   | 0.00   | /80                                   | 10.7            |
| CT Celc<br>(=C×T)                   | 400                                       | CONTRACTOR OF THE PARTY OF THE | 240        | 200           | 100        | 400                                   | 672                    | 120  | 228  | 219                                       | 20%                                     | Partie and Market State of the Parties of the Parti | 2557       | 246                       | 27.8                  |   | 300                                       | Oly Williams | 100                 | 465        | 487        | The good of All 1  | 47         | INCOVER 17 COMPANY | Tab        | TO REPORT OF THE PROPERTY OF   | 46         |  | 374  | (A)                                   |                 |
| Disurfectant Contact Time* T (min.) | 140                                       | 140   | 150        | 460           | 151        | ***                                   | 180                    | 15   | 152  | 18 19 19 19 19 19 19 19 19 19 19 19 19 19 | 138                                     | 10 10 10 10 10 10 10 10 10 10 10 10 10 1   | 136        | 880                       | 137                   | 三年のはは日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日 | 161                                       | 444          | (A)                 | 48         | 148        | The state of the s | 144        | 100                | 142        | The second secon | 158        | 160  | 148  |                                       |                 |
| ≠ <sup>2</sup> 5                    | 168                                       | 130   | 207        | 201           | 1.57       | 146 THE SHIP                          | 2.14                   | 1 St. Community of the last of | 150  | 2 部分に対象をある。                               | 213                                     | 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1  | 6891       | THE STREET WAY TO SEE THE | 1.71                  | 146   | 1.71                                      | 174          | 144                 | 148        | 1.13       | 102  | 1 02       | 4.48               | 275        | 080  | 0.29       | The second secon | 2.54   | 3.65                                  |                 |
| Peak Hourly Flow?<br>(9pm)          | 152                                       | 162   | 152        | -44- 182 FEET | 152        | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 152                    | 162  | 152  | 2   | 152                                     | 162  | 152        | 162                       | 152                   | 162   | 152                                       | 162          | 152                 | 152        | 152        | 162  | 152        | 162                | 152        | IN IN THE SECTION AND ADDRESS.   | 152        | 182  | 152  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |                 |
| Day                                 |   | 2   | 9          | 中国 (1)        | 2          | 9                                     | 7                      | 8  | 6  | 10  | ÷                                       | 12   | 13         | T.14 Sec.                 | 15                    | 16  | 17  | 18           | 19                  | 80         | 21         | 2  | 23         | 24 may 6           | 52         | 8  | 27         | 28   | 83   | 8                                     |                 |

1 Ube a separate form for each deinfoctant/sampling point. Enter dishifoctant and sequence position, a.g. "ozone!" or "CIO,73". If more than one dishifoctant sampling point, you must also complete SWTR form M and calculate the cummister is according in according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete SWTR form M and calculate the cummister is according to the complete section to the comple

2 Peat North Your means the highest turnings your during the day, not the absolute peak flow at any instant.

3. The instant Your means the highest turnings your during the day, not the absolute peak flow at any instant.

4. The distriction conscription (CT) of the water before or it the first absolute flow. The time 2 measured each day during peak hourly flow.

4. The distriction conscription (CT) of the water before and day during peak bould your than 1 measured each day during peak hourly flow.

5. The important of the districted water must be measured at least once per day at each restant and the day day at each restant day and day of the districted water must be measured at least once per day at each restant day and day of the day of

oerffly under persittes of law that I am the person stationard to fill out this form and the reformation contained herein is thus, ecourate and complete to the best extent of my

PWS Authorized Signature:

Date: 7.8.202C 413-528-3024 Fax: Phone #:

Title: Primary Certified Operator Ernail: housetorioveter@gesel.com In accordance with 310 CMR 22.15(2), if mailing paper reports. TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are

# Massachusetts Department of Environmental Protection - Drinking Water Program CHLORINE/CHLORAMINES - MONTHLY REPORT

| PWS INFORMATION: | ATION:             |                      |  |  |            |                             |          |             |     |   |             |
|------------------|--------------------|----------------------|--|--|------------|-----------------------------|----------|-------------|-----|---|-------------|
| MONTH:           | June               | YEAR:                | 2020   |  |            |                             |          |             |     |   |             |
| PWS ID #:        | PWS ID #: 1113003  | PWS Nan              | PWS Name: Housatonic Water Works   |  | City/Town: | City/Town: Great Barrington | oton     |             |     |   | 5           |
|                  |                    |                      |  |  |            |                             | 900      |             | 200 |   | Ç           |
| AWALTICAL        | INFORMATION: Refer | to your MassDEP Coll | AVALY IT CAL INFORMATION: Refer to your MassDEP Coliform Sampling Plan and/or DBPR monitoring plan to help complete this section | or DBPR monitoring                     | plan to he | p complete this             | section. |             |     |   |             |
| Type Measured    | Type Measured:     | ☐ Total Chlorine     | Combined Chlorine  | Analytical Method: SM 4500-CI: O D C E | SM 4500-CI | 00 0                        | □        | _<br>_<br>_ | I   | - | ASTM 01253- |
| Notes:           |                    |                      |  |  |            |                             |          |             |     |   | ı           |
|                  |                    |                      |  |  |            |                             |          |             |     |   |             |

|                     | DEP APPROVED SAMPLE SITE INFORMATION | CHLORINE            | COLLECTION AND ANALYSIS3: | D ANALYSIS <sup>3</sup> : |                            |
|---------------------|--------------------------------------|---------------------|---------------------------|---------------------------|----------------------------|
| Semple DEP Location | addon DEP Approved SAMPLE LOCATION   | RESULT <sup>2</sup> | DATE                      | TIME                      | COLLECTED AND ANALYZED BY: |
| RS FP               | Doint of Color                       |                     |                           |                           |                            |
| +                   |                                      | 1.10                | 6/17/2020                 | 14:26                     | Tim Vreeland               |
| +                   |                                      |                     |                           |                           |                            |
| RS 001              | Pleasant and Main                    |                     | 8/47/2000                 |                           |                            |
| RS 002              | Brookside School                     |                     | 0707070                   | 1400                      | IIm Vreeland               |
| +                   |                                      | 0.37                | 6/17/2020                 | 14:40                     | Tim Vreeland               |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
| _                   |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
| +                   |                                      |                     |                           |                           |                            |
| 1                   |                                      |                     |                           |                           |                            |
| -                   |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |
|                     |                                      |                     |                           |                           |                            |

III. COMPLIANCE REPORTING:

| DEP Review Status: |                    | I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is primary Ce true, accurate and complete to the best extent of my knowledge. | In accordance with 310 CMR 22 15(2), it making paper reports, TMQ copies of this report must be received by your MassDEP Regional Office no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effer the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of the month in which the results are received or no later than 10 days effect the end of t           |
|--------------------|--------------------|---|--|
|                    | 207.8.1 June Heart | Primary Certified Operator Signature and Date:  | Average Chlorine Result of All Samples For Month <sup>5</sup> (mg/L): 0.39  of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the month in which the results are received or no later than 10 days af |

SWIR systems: IPC must be collected at distribution sites with zero chlorine residual and results reported on the DEP Bacteriological Monthly Report form and on the appropriate SWIR Form

Collection and Analysis: Chlorine residual shall be measured in the field (immediately upon collection) at the same time and location in the distribution system as total coefforms are sampled Record ND values as 0 (zero).

Sample Type: R8-Routine Distribution Sample, RQ-Original Side Repeat, UR-Upstream Repeat, DR-Downstream Repeat, AR-Additional Repeat, SS-Special Sample (as determined by DEP).

SAL <u>DISTRIBUTIONS</u> samples taken and analyzed shall be included in determining compliance, even if that number is greater than the minimum required. If you collect repeat collions samples within the distribution system during the month, you must also measure for a determined chlorine residual at the repeat sizes and include these samples. DO NOT include raw water (RW) or plant tap (PT) chlorine residual samples in your calculations.



### Massachusetts Department of Environmental Protection - Drinking Water Program

| natment Plant<br>Name <sup>2</sup> : | 1   | satonic W                         |                                   |  | Town':   |   |  |  |  |
|--------------------------------------|---|-----------------------------------|-----------------------------------|--|--|---|--|--|--|
|                                      |   | Long F                            | ond                               |  |  |   | Sarrington   | PWSID  |  |
| - Olivin                             |   |                                   | 3110                              | _  | Treatment Plant IDe <sup>1</sup> :   | 11130   | 003-01T  | Month  |  |
| unioni ii A                          | oretional info  |                                   |                                   |  | 420  |   |  | Reporting Year   | 2020   |
| nical Name .                         |   | odium hyp                         | ochlorita                         | SCHOOL ST                                | Purchased Strength (%)   | 12.5  | SECTION AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS |  | of the second second second  |
| enutacturer <sup>4</sup> :           | Slack Chemica   |                                   |                                   | thage, NY)                               | Purchased Density (Ibalgal):   | 9.97  |  | erget Rangelmin <sup>0</sup>   |  |
| duct Name*:                          |   | ypochlorite                       |                                   |  | Dilution Factor or Mix Ratio   | 1.00  |  | m Betting (low) <sup>11</sup>  |  |
| n for Adding                         | Disinfection -  | Sermont                           | #1 ond Sa                         | Ch troms                                 | MSF Approved (YAI) <sup>11</sup> ;   | Y   |  | m Setting (high) <sup>er</sup>   |  |
| Chemical*:                           |   |                                   |                                   |  | D  | the of last anti-sip  | bon valve issuect  | ion/motecompos <sup>id</sup>   |  |
| lly Reportin                         |   | Note                              | : White com                       | tty data repor                           | ted on C-ADD form may also be o  | confidence by con   | mpilance purpose   |  |  |
| Day                                  | Treated Water   |                                   | Cheatlesi<br>ed                   | Catoolulad                               |  |   | sared", Resulte, U<br>or Continuous (A)  |  | OAM Notes Comments #1  |
|                                      | Volume (gal) <sup>40</sup>  | Volume<br>(gallday) <sup>TF</sup> | Weight<br>(Shafthy) <sup>17</sup> | Chemical<br>Used (Doj <sup>e</sup>       | Chemical Donnya (mg/L) <sup>28</sup>   | a. chlorina<br>residual at end of<br>Segment 1 (mg/L)<br>via Kuntze | b. chlorine<br>residuel et end of<br>Segment 2 POE<br>(mg/L) via Kuntre  | c.   | PWS rate any experiment breakdown, off-ting status,<br>changes in porchased product or batch robing day,<br>encourand procurators or discages that are year of |
|                                      | Backline (1)  | العداة                            |                                   |  |  | OG ØA   | □G ØA  | □G □A  | largel range, etc.   |
| 1 2 2                                | 88088   | 1.9                               |                                   | 2.37                                     | 3.2  | 1.60  | 1.63   |  |  |
| 2                                    | 100043  | 1.9                               |                                   | 2.37                                     | 28   | 2.13  | 1.53   |  |  |
| 8                                    | 111889  | 1.9                               |                                   | 2.87                                     | 28   | 2.22  | 1.57   |  |  |
|                                      | 96973   | 1.9                               | 19411                             | 2.37                                     | 2.9  | 2.07  | 1.95   |  |  |
| 5 00                                 | 98937   | 1.9                               |                                   | 2.37                                     | 29   | 1.21  | 1.92   |  |  |
| 7                                    | 102225  | 1.9                               |                                   | 2.37                                     | 2.8  | 1.02  | 1.80   |  |  |
| 8                                    | 96077   | 1.9                               |                                   | 2.37                                     | 3.0  | 1.15  | 1.76   |  |  |
| 9                                    | 96413<br>90299  | 1.9                               |                                   | 2.37                                     | 2.9  | 1.26  | 1.60   |  |  |
| 10                                   | 96793   | 1.9                               |                                   | 2.87                                     | 3.1  | 3.18  | 1.62   |  |  |
| 11                                   | 101754  | 2.3                               |                                   | 2.87                                     | 8.6  | 1.35  | 1.87   |  |  |
| 12                                   | 107990  | 2.3                               |                                   | 2.87                                     | 3.4  | 2.56  | 1.86   |  |  |
| 13                                   | 105969  | 2.3                               |                                   | 2.87                                     | 3.2  | 1.87  | 1.72   |  |  |
| 14                                   | 104889  | 2.3                               |                                   | 2.87                                     | 82   | 1.46  | 1.68   |  |  |
| 15                                   | 99852   | 23                                |                                   | 2.87                                     | 3.5  | 2.16  | 1.87   |  |  |
| 18                                   | 106262  | 2.3                               |                                   | 2.87                                     | 8.9  | 1.84  | 1.69   |  |  |
| 17                                   | 101496  | 2.3                               | -                                 | 2.87                                     | 3.4  | 1.75  | 1.72   |  |  |
| 18                                   | 100882  | 2.3                               |                                   | 2.87                                     | 8.4  | 2.61  | 1.61   |  |  |
| 10                                   | 101133  | 2.3                               |                                   | 2.87                                     | P 34 / 24 84   | 2.58  | 1.79   |  |  |
| 20                                   | 108368  | 2.3                               |                                   | 2.07                                     | 32   | 3.07  | 1.89   |  |  |
| 21                                   | 108893  | 2.3                               |                                   | 287                                      | 82   | 1.73  | 1.39   |  |  |
| 22                                   | 110771  | 2.3                               |                                   | 2.87                                     | 3.1  | 2.58  | 1,55   |  |  |
| 23                                   | 118858  | 2.3                               |                                   | 2.87                                     | 29   | 1.81  | 1,57   |  |  |
| 24                                   | 125142  | 2.3                               |                                   | 2.87                                     | 2.8  | 2.06  | 1.63   |  |  |
| 25                                   | 115586  | 2.3                               |                                   | 2.87                                     | 80   | 1.90  | 1.51   |  |  |
| 26                                   | 121330  | 2.3                               |                                   | 2.87                                     | 28   | 1.83  | 1.47   |  |  |
| 27                                   | 126824  | 2.3                               |                                   | 2,87                                     | 2.7  | 2.10  | 1.65   |  |  |
| 26                                   | 100530  | 2.3                               |                                   | 2.87                                     | 3.4  | 1.84  | 1.56   | 5-00   |  |
| 29                                   | 113528  | 2.3                               |                                   | 2.87                                     | 3.0  | 2.18  | 1.50   |  |  |
| 80                                   | 122366  | 2.3                               |                                   | 2:87                                     | 28   | 2.22  | 1.36   | 11111  |  |
| 31                                   | 121872  | 2.3                               |                                   | 2.87                                     | 2.8  | 1.52  | 1.30   |  |  |
| otal                                 | 3296967   | 67.7                              | 1                                 | ndicate total #<br>Summary <sup>21</sup> | of days the residual was off-target  | for the month (from   | Section (i) Month  | ly Target  | 0  |
|                                      | o (oo or, and)  | roorder, sout I                   | reading, gra<br>til, bench, et    | b, etc.) semple<br>5.) <sup>20</sup>     | location (entry-point, before/after l  | illers, tanks, etc.)  | the best extent of<br>PWS Aut  | metion contained<br>my knowledge.<br>Thortzed Person -<br>gnature & Daty <sup>21</sup> : | an the person enthinated to fit out this herein is true, accurate and complete to price. Merc. 6.  |
| C                                    | niomie is monitore:<br>verage value during<br>hiorine is monitore:<br>verage value during | continuous                        | v via a Kuntz                     | e ensever Da                             | lly chlorine residual values provide<br>lly chlorine residual values provide | are for the   |  | Print Name:  | James J. Mercer  |



### Massachusetts Department of Environmental Protection - Drinking Water Program TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

SWTR

| Treat    | ment Plant Name:                    | /S Name: Housetonic Wa                        | 4441100                                 | PWS Town: Great Barrington      |
|----------|-------------------------------------|---|---|---------------------------------|
|          |                                     | Long Pend                                     | Reporting Period → Morath:              | May Year: 2                     |
| Filtered | Water Turbidity Measured            | (about a second                               | 200                                     |                                 |
|          | remark measured:                    | (check only one)                              | luent Individual Filter Effluent I      | Clearwell Plant Effluent        |
|          | tration                             | onal Direct Alternative                       | Monthly Turbidity (95%) NTU Limit = 0.3 |                                 |
| Tecl     | nnology:   Slow Sar                 | d Distomaceous Earth                          | Monthly Turbidity (95%) NTU Limit = 1   | Max Day Turbidity NTU Limit = 1 |
|          | Max Filtered Water                  |   |   | Max Cay Turbidity NTU Limit = 5 |
| Day      | Turbidity Result <sup>2</sup> (NTU) | Number of Turbidity Measurements <sup>3</sup> | Number of Turbidity Measurements        | Number of Turbidity Measuremen  |
|          | 0.045                               | 6   | ≤ Monthly (96%) NTU Limit <sup>4</sup>  | Max Day NTU Limit               |
| 2        | 0.046                               | 8   | 6                                       | 0                               |
|          | 0.047                               | 6   | 6                                       | 0                               |
|          | 0.050                               | 6   | 6                                       | 0                               |
|          | 0,058                               | 6   | 6                                       | 0                               |
|          | 0.050                               | 6   | 6                                       | 0                               |
|          | 0.052                               | 6   | 6                                       | 0                               |
|          | 0.052                               | 6   | 6                                       | 0                               |
|          | 0.058                               | 6   | 6                                       | 0                               |
|          | 0.044                               | 6   | 6                                       | 0                               |
|          | 0.046                               | 6   | 8                                       | 0                               |
|          | 0.059                               | 6   | 6                                       | 0                               |
|          | 0.042                               | 6   | 6                                       | 0                               |
|          | 0.047                               | 6   | 8                                       | 0                               |
|          | 0.042                               | 6   | 6                                       | 0                               |
|          | 0.046                               | 6   | 8                                       | 0                               |
|          | 0.043                               | 6   | 6                                       | 0                               |
| •        | 0.068                               | 6   | 6                                       | 0                               |
|          | 0.053                               | 6   | 6                                       | 0                               |
| 8        | 0.051                               | 6   | 6                                       | 0                               |
|          | 0.046                               | 6   | 6                                       | 0                               |
|          | 0.045                               | e   | 6                                       | 0                               |
|          | 0.042                               | 6   | 6                                       | 0                               |
|          | 0.049                               | 6   | 6                                       | 0                               |
|          | 0.060                               | 6   | 6                                       | 0                               |
|          | 0.045                               | 6   | 8                                       | 0                               |
|          | 0.045                               | 6   | 6                                       | 0                               |
|          | 0.043                               | 6   | 6                                       | 0                               |
|          | 0.057                               | 6   | 6                                       |                                 |
| 1000     | 0.051                               | - 6   | 6                                       | 0                               |
|          | 0.045                               | 6   | 6                                       | 0                               |
|          | Totals:                             | 186   | 186                                     | 0 % Turbidity Meeting 95% Limit |
|          |                                     | A   |   | B/A x 100 % = X                 |

- 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). For continuous monitors count each 4-hour period as 1 measurement. Record the actual turbidity result at the specified interval of time. Do not average turbidity measurements. If DEP approved, 15-minute readings (i.e. 96 readings per day) may be submitted. Fiftered turbidity data must be kept on the for DEP review.
- 4. Out of the # of turbidity measurements taken and recorded in the previous column, enter the number of turbidity measurements that were less than or equal to the Monthly (95%)
- 5. If at any at time the filtered turbidity Max Day NTU Limit is exceeded, the DEP must be notified no later than the end of the next business day. For each exceedence, record the turbidity value(s) and date(s) on SWTR Form G

| I certify under penelties of law that I am the person<br>authorized to fill out this form and the information contained<br>herein is true, accurate and complete to the best extent of | rate with the second state of the second sec |  |
|--|--|--|
| my knowledge.  | Date: 6-8-2 O Titte: Primary Certified Operator  |  |

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MessDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is

### E

### Massachusetts Department of Environmental Protection - Drinking Water Program COMPLIANCE DETERMINATION FOR FILTERED SYSTEMS - Monthly Report

| SW | TR |
|----|----|
| -  |    |

|                |  | 111300  |   | 2  | PWS Nam  | 9:   | Hou  | HEIDON WE  | er Vilories  | THE PARTY OF  | 7  | PWS Town   |   | America de   | -             |
|----------------|--|---|---|--|--|--|--|--|--|---|--|--|---|--|---------------|
|                |  | Plant Name  |   |  | Long Po  | od   |  | 7  |  | ng Period:  | <b>-</b>   | PW3 IOW  | _   | Great Borrin   | CHOL          |
| mus            | DIAG2 TO   | 24 10.5   | ESTITE  | A  |  |  |  |  | Nepot to   | iñ Leuor:   | Month:   | Max  | Ye  | 2020   | 9             |
| 1.             | Monthly<br>measurer  | Turbidity (   | 96%) NTU<br>each mor  | Limit - The  | turbidity le   | vel of a syst  | tem's filten   | ed water mu  | st be less   | than or equa  | d to the M   | ontly Turbidi  | ty NTU Li                                 | mit in at least  | 95%           |
|                | 186  | ALC: UNKNOWN  | -A  |  |  |  |  |  | A Committee of the Comm | (Her 2)<br>WTR - Form   |  |  |   |  |               |
|                | 185  |   | -8  |  |  |  |  |  |  |   |  | mits for the I   | Miration te                               | chnology use   | ad.           |
|                | 100.00%  | - (B/   | A) X 100  |  |  |  |  |  |  | hly Turbidity   |  |  |   |  |               |
| <br>L          | Max D  | ay NTU Lin  | nit - The tu  |  | -  |  |  |  |  |   |  |  |   | ogy used, all  | _             |
| _              | SWIR   |   |   | date and tur   |  |  |  |  |  |   |  |  |   | ogy used, all  | ieswi         |
| 1              | ate  | V   | tive  |  | Reported   |  | easuremen  | 15 exceedin  |  |   | ☑ Chec   | k box if "No   | ne"                                       |  |               |
| _              |  |   |   |  | responde   | W DEP  |  |  | 1000   | Date  | ALEX   | alue.  | Date                                      | Reported t   | o D           |
|                |  |   |   |  |  |  |  |  | -  |   |  |  |   |  |               |
|                |  |   |   |  |  |  | 11111  |  |  |   | -  |  | -   | is not consu   |               |
| 1              | Point-of-E<br>SWTR TT  |   |   | ectant Resi  |  |  |  |  |  | nnot be <0.2  |  | nore than 4  | hours.                                    |  |               |
|                | Day  | Cl <sub>2</sub> mg/L  | Day   | minn   | mum Dieir  | motion Re  |  |  | try to Dist  | albution Syr  | dem  |  | N. S. | 4554LV1775   |               |
|                | 1  | 1.52  | 6   | 1.76   | Day  | Cl <sub>2</sub> mg/t;  | Day  | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L  | Day  | Cl <sub>2</sub> mg/L   | Day                                       | Cle mort   |               |
|                | 2  | 1.50  | 7   | 1.03   | 11   | 1.86   | 16   | 1.72   | 21   | 1.22  | 26   | 1.35   | 31  | 1.26   |               |
|                | 3  | 1.49  | 8   | 1.60   | 13   | 1.66   | 17   | 1.61   | 22   | 1.49  | 27   | 1.50   |   | Measured   |               |
|                | 4  | 1.73  | 9   | 1.62   | 14   | _  | 200  | 1.13   | 23   | 1.47  | 28   | 1.48   | <b>2</b>                                  | Free Cla   |               |
|                |  |   | _   | 1.02   |  | 1.67   | 19   | 1.84   | 24   | 1.55  | 20   | 4.45   | -   |  |               |
| at :           | any time the than by the   | 1.88<br>residual fa<br>end of the   | 10  | 1.87   | 16   | 1.69   | 20   | 1.89<br>system, the  | 25<br>Supplier o   | 1.55<br>1.42<br>Water must  | 30 notify the  | 1.45<br>1.31<br>Departmen  | BS SOON                                   | Total Cl <sub>2</sub><br>embined Cl <sub>2</sub><br>as possible, t   | out n         |
| est<br>R (e)   | any time the   | residual fa<br>end of the<br>est 0.2 mg/L   | 10<br>dis below 0<br>next busine<br>within four<br>n of Cow   | 1.87<br>.2 mg/L in the sas day. The rhours.  | 16   | 1.69<br>thering the d<br>of water also   | 20   | 1.89   | 25<br>supplier of<br>intment by  | 1.42<br>If water must<br>the end of the<br>Residual <   | 30)<br>I notify the<br>e next but  | 1.31   | as soon :                                 | embined Ci <sub>2</sub><br>as possible, t<br>not the resid   | ual v         |
| est<br>R (e)   | any time the<br>than by the<br>cred to at lea<br>tesidual <  | residual fa<br>end of the<br>list 0.2 mg/L  | 10<br>dis below 0<br>next busine<br>within four<br>n of Cow   | 1.87<br>.2 mg/L in the sas day. The rhours.  | 15<br>ne water er<br>e supplier  | 1.69<br>thering the d<br>of water also   | 20   | 1.89   | 25<br>supplier of<br>intment by  | 1.42<br>If water must<br>the end of th  | 30)<br>I notify the<br>is next but   | 1.31<br>Department<br>tiness day v   | as soon :                                 | embined CL   | ual v         |
| est<br>R (e)   | any time the<br>than by the<br>cred to at lea<br>tesidual <  | residual fa<br>end of the<br>est 0.2 mg/L   | 10<br>dis below 0<br>next busine<br>within four<br>n of Cow   | 1.87<br>.2 mg/L in the sas day. The rhours.  | 15<br>ne water er<br>e supplier  | 1.69<br>thering the d<br>of water also   | 20   | 1.89   | 25<br>supplier of<br>intment by  | 1.42<br>If water must<br>the end of the<br>Residual <   | 30)<br>I notify the<br>is next but   | 1.31<br>Departmentiness day w  | as soon :                                 | embined Ci <sub>2</sub><br>as possible, t<br>not the resid   | ual v         |
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| a) R           | any time the than by the pred to at least  | residual fa<br>end of the<br>ast 0.2 mg/t<br>Duration<br>Level  | 10 lis below 0 next busines within fou neft fusion (fare.)  Disinfectar onths. SW residual is s taken dur   | 1.87 2 mg/L in the seas day. The rhours.  Date F  the Residual TR TT Viol detected, as large month: (should it should it shoul | 15 ne water er e supplier e suppl | 1.69 tering the doff water also possible of the control of the con | 20 Retribution 0 must not infectant e residualis e residualis e collected assuremer  | 1.89 system, the baps system, the Daps soncentration must be m and analys. HPC sites this were man n your monitoristeed of CL  | 25 supplier of interest by Dete(a) I 0.2  Dete(b) I 0.2  O(V) cenn easured at easured at easured at easured at the interest by RTCR residual r   | 1.42 If water must the end of the Residual < mg/L  oot be undete t the same to  or a residual Ci2 residual measuremen   | Duratio Level  Cotable in g me and for was deter   | 1.31 Departmensiness day was of Low (thre.)  | Date  5% of same coliform                 | embined Ci <sub>2</sub> is possible, to not the residence the residence to the resid | DE            |
| a) R           | any time the than by the tred to at les testiques < mg/L.  Distribution any two con the control of Hill.  2  | residual fa<br>end of the ist 0.2 mg/L<br>burstlor<br>Level   | 10 lis below 0 next busine, within fou n ef Low (firs:)  Disinfectar onths, SW residued is s taken dur  | 1.87 2 mg/L in the sast day. The rhours.  Date F  the Residual TR TT Viol detected, as large month: [ # of sites   | 15 ne water er e supplier e supplier e supplier e supplier e sator (Tier n HPC sam e the sam e HPC sam e where no  | 1.69 tering the doff water also possible of the control of the con | 20 Bistribution 0 must not infectant of residuals a collected assurement reported of melyzed in was determined.  | 1.89 system, the by the Dapa must be m and analyze HPC sites were many nour month steed of Citated and no cated and no   | 25 supplier of interest by Date(s) 1 0.2  Date(s) 1 0.2  O(V) canneasured at each of the control | 1.42 If water must the end of the Residual < mg/L  oot be undete t the same to cle residual cle residual measuremen   | Duratio Level  Cotable in g me and for was deter   | 1.31 Departmensiness day was of Low (thre.)  | Date  5% of same coliform                 | embined Ci <sub>2</sub> is possible, to not the residence the residence to the resid | DE            |
| (a) R          | any time the than by the pred to at least  | recidual feed of the east 0.2 mg/L  Duration Level  1 System D  Socutive mples. If no                     | 10 lis below 0 next bushes, within four nef Low (fare:)  Disinfectanonins, SW residual is t taken dur a   | 1.87 2 mg/L in the stay of the stay of sites   | 15 ne water er e supplier e suppl | 1.69 thering the doff water also DEP Residual Dis 2). Chloring the doff water also residual management to the control of the c | 20 Retribution 0 must not sinfectant of residuals a residuals a collected assurement reported of malyzed in twas determined to the sinfectant of the sinfect | 1.89 system, the system, the Department of the D | 25 Supplier of interest by Data(a) I 0.2  In (V) cannossured at ead. > 500/ml.: they RTCR residual r HPC sam CC > 500 C  | 1.42  If water must the end of the  Residual < mg/L  oot be undete t the same til  er a residual Cl <sub>2</sub> residual measuremen ple was anal  FU/mL  | Duratio Level cctable in g me and loc was detected to g yzed   | 1.31 Departmensiness day was off. Low (bre.) Prester then action as total control of the control | Dute  Dute  5% of same at collionm        | embined Ci <sub>2</sub> as possible, it not the resid  Reported to   | DE nth, routh |
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| e) R<br>0.2 r  | any time the than by the pred to at lea leastural < mg/L.  Distribution any two concesses sam Total & of Hi  | recidual feed of the last 0.2 mg/L st 0.2 mg/L Duration Level  System D Socutive m ples. If no PC samples | Ito below 0 next busines, within four officers;)  Disinfectarrontins, SW residued is staken dur at the below 0 next busines at the switch at the below 0 next business at the switch at the below 0 next business at the switch at the below 0 next business at the business at the below 0 next business at the below 0 next business at the business at the below 0 next business at the business at the below 0 next business at the business at the below 0 next business at the | 1.87 2 mg/L in the sease day. The rhours.  Date F  the Residual TR TT Viol detected, as large month: [ # of sites # of sites # of sites erotrophic butts requirem.  This Month.  | 15 ne water er e supplier e supplier e supplier e supplier e saton (Tier n HPC sam e where no where no where no where no suctaria con ent. Where   | 1.69 tering the d of water absolute the d of siles are a of siles are a of c of siles are a of c  | 20 Retribution 0 must not infectant of residualist e collected e collected interpreted o melyzed in was deter was deter measurer HPC) less report HP(  | 1.89 system, the system, the Department of the D | 25 supplier of interest by Dete(a) I C.2  Dete(a) I C.2  O C.2  O C.2  Dete(a) I C.2  O C.2  Dete(a) I C.2  Det | water must the end of | Duratio Level  Duratio Level  cctable in grame and loc  was detection of the company of the comp | 1.31 Departmensiness day was off Low (thre.)  restor then stick as to the stick as the stick a | Date  5% of same a coliform  500/ml.      | embined Cig. as possible, it not the resid  Reported to  replies in a mo  distribution g  ant residuel for  2 months?  | DE nth, routh |

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

More than 1 Disinfectant / Sampling Point

|    | Great Barrington  |                              |          |                   | maciwation Ratio      | A STATE OF THE STA |                         |      |                        |      |  |      |  |                    |      | 1000年の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の  |      | CARDIN WASHINGTON OF THE PARTY AND | ACC.   |      |  |      |                     |      |  |      |  | APPENDING STREET, ASSUME ASSUMED |                             |      |  | THE PROPERTY OF THE PARTY OF TH |                            |  |
|----|---|------------------------------|----------|-------------------|-----------------------|--|-------------------------|------|------------------------|------|--|------|--|--------------------|------|--|------|--|--|------|--|------|---------------------|------|--|------|--|----------------------------------|-----------------------------|------|--|--|----------------------------|--|
|    | THE COLUMN TWO IS NOT |                              |          |                   | The selection washing | 10,25 10,010   | 000                     | 20.5 | 20.3                   | 700  | 20.0   | 24.8 | 24.6   | 32.2               | 32.0 | 31.7   | 34.7 | 27.4   | 24.3   | 32.6 | 27.4   | 31.1 | 38.9                | 6.15 | 42.6   |      | 36.4   | 40.6                             | 600                         | 38.6 | 41.0   | 20.00  | 90.7                       |  |
|    | PWS Town:   | Year: 2020                   |          |                   | 超                     |  |                         |      |                        |      |  |      |  | THE REAL PROPERTY. |      | THE PROPERTY OF THE PARTY OF TH |      | MAKATICAL STANIS   |  |      |  |      |                     |      |  |      |  |                                  |                             |      |  |  | STATE OF STREET            | The second secon |
|    | forks   | Reporting Period: Month: May |          |                   | Sth                   |  | 2                       |      | WILLIAM COLLEGE STATES |      | THE RESERVE THE PERSON NAMED IN  |      |  |                    |      |  |      |  |  |      |  |      |                     |      | 日の大学を大学の一日を行び  |      | The state of the s |                                  |                             |      |  |  | The second second          |  |
|    | Housetonio Weter Works  | Reporting Period:            |          | 1910 / CT 89.50   | 49                    |  |                         |      | TOTAL STREET           |      | THE WHITE SHE  |      | The second secon |                    |      |  |      |  | A STATE OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE P |      | Commence of the last of the la |      | SE CHARGOS SERVICES |      | Charles and the Control of the Contr |      |  |                                  |                             |      | Section of the second  |  |                            |  |
|    |   | Windshift I                  |          | it Sequence (CT c | 3rd                   |  | A STATE OF THE PARTY OF |      |                        |      | STREET, STREET |      | The state of the s |                    |      |  |      |  | THE RESERVE AND ADDRESS.   |      | THE PERSON NAMED IN COLUMN   |      | THE STORY PROPERTY. |      | WILL STREET, S |      | The state of the s |                                  | Participation of the second |      | COLUMN TO THE PARTY OF THE PART |  | THE RESIDENCE AND ADDRESS. |  |
|    | PWS Name:   | Long Pand                    |          | Diefinfeater      | 2md                   | 20.8   | 15.7                    | 15.1 | 21.3                   | 21.9 | 21.3   | 20.7 | 97.8   | 24.2               | 7.00 | 27.4   | 20.8 | 19.4   | 26.4   | 21.4 | 25.9   | 27.8 | 24.3                | 32.9 | 82.9   | 28.6 | 29.3   | 80.8                             | 28.9                        | 32.1 | 28.2   | 28.6   | 48.5                       |  |
| 10 | 1113003   | reatment Facility Name:      | RORTINGE |                   | 18                    | 4.0  | 5.0                     | 6.2  | 5.4                    | 3.6  | 3.4  | 3.8  | 4.6  | 7.8                | 60   | 7.8  | 8.0  | 4.8  | 7.4  | 6.0  | 5.6  | 8.2  | 7.0                 | 9.6  | 10.2   | 7.8  | 11.3   | 8.5                              | 9'6                         | 9.7  | 8.7  | 10.5   | 10.6                       | 200  |
|    | PWS ID#:  | reatment Fa                  | EMILY RE |                   | ) and                 |  | 2                       | 2    | 1 TO 1                 | 22   | 9  | _    | 8  | •                  | 10   | ==   | 12   | 13   | 14   | 15   | 16   | 17   | 18                  | 19   | 8  | 21   | 22   | 23                               | 34                          | 25   | æ  | 27   | 28                         | 20   |

51.6 41.9 To determine SUM (CT catc/CT 99.9), add (CT catc/CT 99.9) values from the first disinfectant sequence to the last from SWTR - Form I.
 The inactivation ratio (CT catc / CT 99.9) is determined before or at the first customer during peak hourly flow and if the SUM (CT catc / CT 99.8)
 CT 99.8)
 CF 99.8)
 CF 99.8)
 CF 99.8)
 CF 99.8)

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

Primary Certified Operator Tige: Date: 6-8-20 Email: Fax: 413-528-3024 413-528-1780 PWS Authorized Signature: Phone #:

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

## Massachusetts Department of Environmental Protection · Drinking Water Program cT DETERMINATION FOR FILTERED SYSTEMS

|                  |                          |                             | - G  |
|------------------|--------------------------|-----------------------------|--|
|                  | 0.0906345                | Year. 2020                  | 36 0 45 0 85   |
|                  | PWS Town                 |                             |  |
| West,            | Renorting Beind          | Olefototical Accession      | Companies a series of the companies of t |
| Wandowie Water   | Reno                     | Ona pibe)                   |  |
| WS Name:         | Lang Pand                | it clearwell (tap in 200-8) | duling prest hours flow  |
|                  |                          | ent Segment 1 - pos         | Destracting Man  |
| PWS ID#. 1113003 | Treatment Facility Name: | Disinfectant <sup>1</sup> . | WALY REPORTINGS AM   |

|     |                        | L   |  |                   |       |                         |           |                             |                                       |
|-----|------------------------|---|--|-------------------|-------|-------------------------|-----------|-----------------------------|---------------------------------------|
| Day | Peak Hourly Flow (gpm) | 8   | Disinfectant Contact Time <sup>4</sup> T (min.)  | CT Calc<br>(=C×T) | **    | Water Temp <sup>6</sup> | ਹੈ<br>ਛ   | Inactivation Ratio          | Inactivation Retio                    |
| -   | 162                    | 1.60  | 138  | 166               | 7 67  | -                       |           | (0.00 10.00 10)             | 0.17                                  |
| 2   | 182                    | 2.13  | 124  | 200               | 16.1  | 6.3                     | Š         | 4.0                         | see Form H                            |
| 60  | 152                    | 0.00  | 3  | 101               | 1.49  | 8.5                     | 28        | 6.0                         | Con Form L                            |
|     | 46.5                   | 777   | 35   | 293               | 7.48  | 8.8                     | 98        | RO                          | THE PARTY OF                          |
|     |                        | 707   | No. of the last of | 278               | 7.60  | 0.7                     | 12        |                             | see rom H                             |
| n   | 162                    | 1.21  | 134  | 46.1              | 1 10  | 300                     | 0         | 2                           | See Form M                            |
| 8   | 162                    | 100   | 9  | 200               | 143   | 202                     | 45        | 3.6                         | See Form H                            |
| 7   | 152                    | 1.15  | 277  |                   | 1.42  | 105                     | 143       | 3.6                         | See From M                            |
| 80  | 469                    | 200   | 40   | 170               | 7.44  | 108                     | *         | 3.6                         | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| a   | 2000                   | 8   | 45   |                   | 101   | 40.5                    | 30        |                             | BOR FORM H                            |
| -   | 15%                    | 3 18  | 120  | \$82              | 7 43  | 444                     | 3         | 0.0                         | fao Form H                            |
| 0   | 162                    | 136   | The second section in the second second  | 400               | 7     |                         | 48        | 7.8                         | see Form H                            |
| 7   | 162                    | 2.58  | 144  | 900               | 3     |                         | 40        | 6.0                         | See Form H                            |
| 12  | 162                    | 4.87  | 757  | 200               | 7.18  | 104                     | 47        | 7.6                         | Rose Form M                           |
| 13  | 162                    | 48  | 101  | 5                 | 7.16  | 103                     | 44        | 6.9                         | Marie France 34                       |
| 14  | 2                      | 2.48  | 121  | 202               | 7.12  | 103                     | 42        | 4.8                         | Can Form Li                           |
| 15  | 450                    |   | 8  | 200               | 7.18  | 10.3                    | 879       |                             | LI LINE                               |
| 4   | 1                      | 20.   | 130  | 208               | 7.11  | 10.6                    | 2         | 0                           | See Pomh                              |
| 1   | 701                    | 9/1   | (40  | 2046              | 730   | 809                     | 1         | 0.0                         | Bee Form H                            |
|     | 2                      | 261   | 138  | 386               | 7 40  | 1                       | 2         | D'A                         | eso Form H                            |
| 9   | 2                      | 204   | 198  | 300               | 200   | 2112                    | 3         | 8.2                         | Bee Form H                            |
| 2   | 162                    | 2.58  | 177  | 444               |       | 070                     | 88        | 7,0                         | terna Forten H                        |
| 8   | 8                      | 807   | 3  | 200               | 5.0   | 126                     | 98        | 8.8                         | \$60 Form H                           |
| 22  | 152                    | 1.73  | 151  | 200               | 5     | 12.0                    | 9         | 10.2                        | She Form H                            |
| 22  | 291                    | 2.68  | 19   | 200               | 5.0   | 13.2                    | ×         | 7.8                         | see Form H                            |
| 23  | 152                    | 181   | 147  | 407               | 500   | 13.4                    | 3/        | 11.3                        | soe Form H                            |
| ă   | 162                    | 206   |  |                   | )AB   | 14.1                    | 31        | 8.6                         | Bee Form H                            |
| 52  | 152                    | 1.80  | 453  | 000               | 000   | 14.0                    | 0         | 9                           | Dog Form H                            |
| 8   | (62                    | TO THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN THE PERSON NAMED IN | 95   | 007               | O.B.O | 14.9                    | 30        | 9.7                         | see Form H                            |
| 22  | 152                    | 2 10  | 140  | 900               | 26.00 | 15.6                    | 20        | The second of the second of | Son Form H                            |
| 2   | 162                    | 181   | 450  | 2007              | 29.0  | 16.1                    | 28,       | 10.8                        | Bee Form H                            |
| 28  | 162                    | 2.18  | CAS  | 740               | 08.0  | 986                     | 58        | 16.0                        | Seto Form H                           |
| 8   | 150                    | 222   | #  | 375               | 200   | 8./                     | 98        | 13.6                        | see Form H                            |
| 3   | 152                    | 1.52  | BA   | 44.0              | 988   | 1/1                     | <b>20</b> | 13.7                        | Bee Form H                            |
| 200 |                        |   | 8  | ***               | 200   | 17.9                    | 2         | 900                         |                                       |

1.Ubes a separate from for each destrictant/completing point. Enter districtions and sequence position, e.g. "occord" or "CIOyG". If more that one distriction cannot be complete SWTR from H and calculate the computer because the CIVID CO.

2. Pet thank four means the highest purpose boar during the day, not the absolute peat flow at any institut.
3. The residual distriction's comparable to the season of the

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

Date: 6 .8 .20 Fax: 413-528-3024 PW8 Authorized Signature:

Title: Primary Certified Operator Emell: houstoniowspellgmail.com In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are

# Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

|   |                          |                                       |                           |              | Inactivation Ratio                     | ri,  | see Form H | see Form H | gee Form H | sea Form H | see Form H | ses Form H | see Form H | See Form H | see Form H | A POUT H | see Form H | see Form H | 80e Form H | 800 Form H | see Forn H | BSE FORTH H | see Form H | Jee Form H | Son Form M     | See Form H | Been Form H |      |
|---|--------------------------|---------------------------------------|---------------------------|--------------|--|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|----------------|------------|-------------|------|
| Great Burnalon                          |                          | # D ## D                              |                           |              | Inactivation Ratio                     | 6.00 | 0.02       | 100        | 16.1       | 270        | 27.9       | 27.5       | 70.7       | 27.6       | 24.2       | 28.7     | 77.1       | 20.6       | 18.4       | 707        | 21.4       | 20.2       | 27.8       | 28.3       | 32.9       | 22.0        | 28.6       | 20.3       | 30.8       | 20.9       | 32.1       | 28.2       | 28.6       | 48.8           | 38.1       | 33.6        |      |
|   | Year                     | 34 🗆 🖶                                |                           |              | CT,                                    | 68   | 70         | 200        | 8          | 3          | 78         | 2 3        | 9          | 8          | 28         | 8        | 2          | 2          | 52         |            | 2          |            | 46         | 8          | 46         | *           | 8          | 8          | 88         | 8          | S          | 83         | 31         | 30             | 739        | 28          | 6.00 |
| PWS Town:                               |                          | 1st @ 2nc                             | AND OWNER                 |              | Water Temp <sup>a</sup>                | 18   | 4.2        | Ya         | 0.0        | 000        | 200        | 4.0        | 9.0        | 270        | 20 10      | 200      | 0.0        | 200        | 9.6        | 100        | 10.0       | 700        | 10.0       | 200        | 7.17       | 101         | 77         | 10.1       | 23.0       | 0          | 14.3       | 16.3       | 15.8       | 16.2           | 17.0       | 17.3        | 17.5 |
| 100000000000000000000000000000000000000 | Month:                   | tant Application:                     |                           |              | å.                                     | 8.50 | 8.50       | B 84       | 920        | 230        | A R.       | 920        | 180        | 200        | 310        | 2.40     | 0,70       | 7.00       | 007        | 207        | 0//        | 92         | 4 40       | 245        | 200        | 7.40        | 27.0       | 100        | 3.6        | 80.7       | 2          | 987        | 7.35       | 734            | 7.34       | 7.82        | 7 24 |
| onio Water Works                        | Reporting Period:        | Sequence of Disinfectant Application: |                           |              | CT Calc                                | 1700 | 1248       | 1200       | 4740       | 1743       | 1607       | 18.86      | 1568       | 100        | 4807       | 1698     | 4000       | 4049       | 490        | 1448       | 6949       | 4.288      | 9410       | 4,475      | 1446       | 1088        | 4469       | 1494       | 6623       | 4440       | 978        | 040        | 24/10      | Anary<br>Anary | 100/       | 270         | 100  |
| Houset                                  | Long Pond                | rif 2 - aborage tank effluent (POE)   | peak hourly flow,         |              | Disinfectant Contact Time*<br>T (min.) | 1044 | 843        | 784        | 878        | 690        | 892        | 884        | 672        | 844        | 808        | 820      | R26        | 910        | 750        | 878        | 723        | 800        | 620        | 808        | 784        | 787         | 719        | 718        | 620        | 735        | 673        | 683        | 0/0        | 736            | 877        | 840         | 040  |
| ] PWS Name:                             | Intelligent Course       | Segme                                 | Pateriments telpen during | Disinfactant | Concentra<br>C (mg/                    | 1.63 | 1,63       | 1.67       | 1.96       | 1.82       | 1.80       | 1.76       | 1.60       | 1.62       | 187        | 1.88     | 1,72       | 1.88       | 187        | 1.69       | 1.72       | 1.61       | 1,70       | 1.84       | 1.89       | 1.39        | 1,65       | 1.57       | 1.83       | 1.61       | 147        | 165        | 1,68       | 38             | 136        | 1.30        |      |
| 1113003                                 | Treatment Facility Name: | Disinfectant <sup>1</sup> :           | LOUILY REPORTIVES All men |              | Peak Hourly Flow<br>(gpm)              | 3.5  |            | 22         | 10         | 101        | 90         | 80         | 101        | 112        | 122        | 118      | 144        | 167        | 122        | 139        | 181        | 119        | 156        | 119        | 418        | 120         | 23         | 133        | 991        | 128        | 88         | 160        | 100        | 130            | 137        | 146         |      |
| PWS ID#:                                | Trea                     |                                       | D. DARLY R.               |              | )<br>Day                               | - 6  |            | 2          |            | n          |            |            | 0          | •          | 9          | =        | 53         | 13         | Y.         | 2          | 9          |            | 20         | 2          | R          | 7           | 7          | 23         | 74         | 92         | R          | 27         | 2          | 8              | 8          | 31          |      |

(ST calcifor 1993) to determine compliance.
2. Pear Interport and the following the day, not the absolute peak flow at any instant.
3. The interport concentration of the flow concentration of the flow customer must be measured each day during peak hourly flow.
4. The deleteration concentration of the flow customer must be measured as the flow concentration of the flow customer must be measured as the flow of the destruction of the flow customer must be measured as the flow of the destruction of the des 1.Uve a separate form for each disinfectunithemphing point. Enter disinfectant and sequence position, e.g. "cooner!" or "CIO\_23". If more than one disinfectant eampling point, you must also complete SWTR Form H and calculate the cummissive inactivation ratio SUAN

Title: Primary Certified Operator Person author penalties of lew that I are the person authorized Signature:

| Person authorized to fill out this form and the information contained begin authorized to file out this form and the information contained begin authorized. | Person authorized to file begins fauthorized to file begins and the fill outpet to file begins and the month in which the results are in accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be neceived by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are

Email: housetonicwater@gmeil.com

# Massachusetts Department of Environmental Protection - Drinking Water Program CHLORINE/CHLORAMINES - MONTHLY REPORT

| Cleas: (20M ()TINC ()NC   N1.  |                                  | COLLECTED AND ANALYZED BY:                | Erick Bartlett     |                   | Erick Bardett        |  |   |  |   |  |                | reluces as O (zero).<br>Isitizution ayatem during the   | Average Chlorine Result of All Semples For Month <sup>®</sup> (mg/L): 0,23<br>days effer the end of the mouth in which the results are mosked or no leter than 10 days after the end   | no 9 Muca 6.8 2020  |                               |
|--|----------------------------------|---|--------------------|-------------------|----------------------|--|---|--|---|--|----------------|---|--|---|-------------------------------|
| Great Barrington complete this sectio  | - 11                             | ID ANALYSIS <sup>3</sup> :                | 8:20               | 350               |                      |  |   |  |   |  |                | riate GWTR Form.  ** are sampled. Record ND armined by DEP).  ** Bloom samples within the diduit samples within the diduit samples in your color.   | orine Recult of All Sq<br>rd of the month in which th  | re and Date:  |                               |
| City/Town: Goring plan to help co  | 3                                | COLLECTION AND ANALYSIS?: DATE TIME       | 6/13/2020          | 6/13/2020         | 5/13/2020            |  |   |  |   |  |                | m Bempling Plan. sport form and on the appropation system as total coliforms. r 88-8pecial Bemple (as det university to collect repeat on a plant in you collect repeat on a plant in you collect repeat on a plant in you collect reseat   | Average Chio   | Primary Certified Operator Signature and Data:  |                               |
| ter Works Ind/or DBPR monitoring Analytical Nethod:                          |                                  | CHLORINE<br>RESULT <sup>2</sup><br>(mg/L) | 1,19               | 0.24              | 0.21                 |  |   |  |   |  |                | n on your DEP Total Collin<br>Pacteriological Monthly Ris<br>and location in the distribu-<br>st, AR-Additional Repeat, or<br>batter than the refutiment or<br>T include raw water (RM).  | or Month <sup>6</sup> : 2<br>saDEP Regional Office no A  |   | Review Comments:              |
| PWS INFORMATION:   MONTH: May   YEAR: 2020                                   | DED ADDROVED CAMDIT OFF MICCORD. | DEP Approved SAMPLE LOCATION              | Endry              | Pleasant and Main | • School             |  |   |  |   |  |                | UST Sample Type, Location Codes, and DEP Approved Sample Site Location must correspond to the same information on your DEP Total Coldom Sample Plan.  26WTR systems. HPC must be collected at distribution sites with zero choints residual and results reported on the DEP Bactariclogical Monthly Report form and on the appropriate SWTR Form.  20descition and Analysis Cluster residual shall be measured in the site formationally intron coldering the same firm and location in the distribution system as related to the sample and the residual sample and the residual states residual to the repeat also and include in these samples. DO NOT include may waiter (RM) or plant to PDT obtained and samples in ware calculated. | III. COMPLIANCE REPORTING:  In accordance with 310 CMR 22.15(2), if making paper reports. These note: Declarate of this report must be received by your MessaDEP Repland Office no later than 10 days after the end of the month in which the results are mostly on the later than 10 days after the end of the month in which the results are mostly and mostly are mostly and mostly are mostly | remany whose pressures or any state ten the planen authorized to fit out this form and the information contained herein is<br>thus, accurate and complete to the best extent of my knowledge. | ☐ Accepted □Disapproved Revie |
| MONTH:  MONTH:  May  PWS ID #:  1113003  I. ANALYTICAL INFORMATION: Refe     |                                  | DEP Location<br>Code #1                   | EP1 Point of Entry |                   | 002 Brookelde School |  |   |  | + |  |                | USE SARTING 1976. LOSEION COOSE, and DEP Approved Sample Site Lo<br>26WTR systems: HPC must be collected at distribution sites with zero of<br>20dection and Analysis: Ciforine residual shall be measured in the field<br>48ample Type: RS-Routine Distribution Sample, RO-Original Site Repost<br>9.A DISTRIBUTION samples taken and analyzed shall be included in des<br>month, you must also measure for a detectable chlorine residual at the J  | III. COMPLLANCE REPORTING:<br>In accordance with 310 CMR 22.15(2), if maling<br>the monitoring period, withherer is account.   | tore of mry arms sens tree para-  | DEP Review Status:            |
| I. PWS INFORMA<br>MONTH:<br>PWS ID #:<br>II. ANALYTICAL II<br>Type Messured: | Notes:                           | DEP Bample Type W                         | æ                  | RS                | RS                   |  | 1 |  |   |  | DED Branch Tue | OCT SARDER 1/4<br>SWITR systems: 1<br>Collection and An<br>Semple Type: R8<br>6/1 DSTRIBUTIO<br>MONTH, you must,  | III. COMPLIAN In accordance with of the monitoring p   | me, eccurate and  | ۵                             |

### HEALTH NOTES

water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations mental Protection Agency (EPA) prescribe regulations that limit the amounts of certain contaminants in water provided by public establish limits for contaminants in bottled water that must provide the same protection for public health. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MA DEP) and U.S. Environcontaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791). Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/ should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) gudelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800.426-4791). If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Housatonic Water Works is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <a href="http://www.epa.gov/safewater/lead">http://www.epa.gov/safewater/lead</a>

the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should contact their doctor. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of

Cross connections are potentially hazardous situations for public or private potable water supply and a source of potable water through which it is possible to introduce any substance other than potable water into the water supply. Common Cross connection contamination. A cross connection is any potential or actual physical connection between a potable water supply and any source scenarios are a garden hose whose spour is submerged in a bucket of soapy water or connected to a spray bottle of weed killer.

consumers from contaminants due to back-flow events. The installation of back-flow prevention devices, such as a low-cost hose Gross Connections between a potable water line and a non-potable water system or equipment have long been a concern of the Department of Environmental Protection (MA DEP). MA DEP established regulations to protect the public health of water plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in bib vacuum breaker, for all inside and outside hose connections is recommended. You can purchase this at a hardware store or rour community. For additional information on cross connections and on the status of your water system's cross connection.

### Residents can help protect our water resources by:

- Practicing good septic system maintenance
- Supporting water supply protection initiatives and conservation measures
  - Disposing of hazardous household chemicals properly by bringing them to hazardous material collection centers
- Limiting pesticide and fertilizer use, etc.

SLOVAKIAN PROVERB Pure water is the world's first and foremost medicine.

### Housatonic Water Works Company

fames J. Mercer, Water Operator

### HOUSATONIC WATER WORKS

80 MAPLE AVENUE, SUITE 1 | GREAT BARRINGTON, MA 01230 MA DEP PUBLIC WATER SUPPLY ID# 1113003



### Your Annual Drinking Water Quality Information 2019 Consumer Confidence Report

This report provides a snapshot of the drinking water quality that was achieved last year. Included are details about where your water comes from, what it contains, and how its quality compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies.

### PUBLIC WATER SYSTEM INFORMATION

operations of our system. A treatment process that includes filtration and disinfection is also provided. Reservoir water is directed lke structure mixes the chlorinated water and provides treatment over time that helps ensure complete disinfection of the drinking Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MA DEP). MA DEP inspects out system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine through slow sand filters and then a controlled amount of sodium hypochlorite is added and mixed in a contact time basin. This mazewater. The water is monitored by us and MassDEP to determine the effectiveness of existing water treatment and to check if any concerns of our customers and regulators. During 2019 we conducted leak detection throughout the distribution system and identified and repaired two significant leaks. Additional improvements included repairing and the replacement of two (2) fire additional treatment is warranted. As part of our ongoing commitment to you we make regular repairs to the system and address

### YOUR DRINKING WATER SOURCE

### Where Does My Water Come From?

of Housatonic. Long Pond has a surface area of 115 acres and storage capacity of 263 million gallons. The source is designated by MA DEP Source Name and ID Source Number as: Long Pond [1113003-015]. The water system supplies approximately 824 service connections and serves a population of approximately 1300 people. Great Barrington Fire District's Water system can be used in Housatonic Water Works' water comes from the surface water source, Long Pond Reservoir and is located southwest of the Village emergencies. The last Sanitary Survey was conducted in February 2018.

### How are these Sources Protected?

residential land use around surface water sources can contribute to contamination. The SWAP report outlines land activity concerns and commends our water system on the vigilant inspection, monitoring and communication concerning activities in and around our MA DEP prepared a Source Water Assessment Program (SWAP) Report dated January 2003 to assist in the identification of potential sources of contamination. A susceptibility ranking of "moderate" was assigned to this system. Typical agricultural, commercial and watershed. The complete SWAP report is available at the Housatonic Water Works Office, or by contacting the Western Regional Office of MA DEP at (413)755-2215. You may also view this report online at: www.massagox/eca/docs/dop/waset/drinking/swap/ Prepared by Housatonic Basin Sampting & Testing on behalf of your water supplier. This report is a compilation of best available data sources and represents an accurate account of your water quality to the best of our knowledge.

### Housatonic Water Works

### SUBSTANCES FOUND IN TAP WATER

travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the present in source Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water

Microbial contaminants -such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural ivestock operations, and wildlife

Inorganic contaminants -such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or

domestic wastewaler discharges, oil and gas production, mining, and farming. <u>Pesticides and herbicides</u> -which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. Organic chemical contaminants -including synthetic and volatile organic chemicals, which are by-products of industrial processes and betroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants -which can be naturally occurring or be the result of oil and gas production and mining activities.

IMPORTANT DEFINITIONS

### COMPLIANCE WITH REGULATIONS

### Does Drinking Water Meet Current Health Standards?

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as dose to the MCLGs as feasible using the best available We are proud to report that last year your drinking water met all applicable We are committed to providing you with the best water quality available. health standards regulated by the state and federal government.

### Drinking Water Violations

Maximum Contaminant Level Goal (MCLG) -The level of a

reatment technology.

contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. Action Level (AL) -The concentration of a contaminant, if exceeded, triggers treatment or other requirements that a water 90th Percentile - Out of every 10 homes sampled, 9 were at or

We failed to complete required sampling in a timely manner, resulting in required number of samples, we did not know whether the contaminants unknown. However, the samples were collected in February 2020, and whether your health was at risk during that time. The contaminants for which monitoring was not done were a sample for Sodium and Nitrate during Quarter 3, 2019. At the time, the potential health effects were all water quality parameter testing confirms our water falls within the were present in your drinking water, and we are unable to tell you a monitoring and reporting violation. Because we did not take the acceptable levels of the standards

system must follow.

below this leve

### Opportunities for Public Participation

Housatonic Water Works sponsors bi-annual public information meetings and we encourage dialogue on water quality issues on an on-going basis. If you have any questions about the water you drink, please contact, Jim Mercer at Housatonic Water Works' office.

Maximum Residual Disinfectant Level Goal (MRDLG) - The fevel of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the

urbidity - A measure of the doudiness of water. Turbidity is monitored because it is a good indicator of the effectiveness of Massachusetts Office of Research and Standards Guidelines ORSG) - This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to

the filtration system

occur after chronic (lifetime) exposure.

benefits of the use of disinfectants to control microbial

contaminants.

convincing evidence that addition of a disinfectant is necessary

for control of microbial contaminants.

<u> reatment Technique (TT)</u> - A required process intended to Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is

reduce the level of a contaminant in drinking water.

Our Water Quality Reports and other information are posted on the website: www.housatonicwater.com

### UNITS OF MEASURE

- = parts per militon, or militgrams per liter (mg/l)
  = parts per billion, or micrograms per liter (ug/l)
  = Not Detected
  = Not Applicable
  = Not Applicable
  = Not Applicable
- 〖윱망됨당
- Unit measure of radioactivity

### WATER QUALITY TESTING RESULTS

The water quality tables show the most recent water quality testing results where levels were detected and compares those levels to standards set by the Environmental Protection Agency and Massachusetts Environmental Protection Agency.

MA DEP has reduced the monitoring requirements for *inorganic contaminant (IOC's)*, perchlorate and synthetic organic contaminants (SOC's) because the source is not at risk of contamination. Housatonic Water Works' latest samples collected for Perchlorate was in September 2017 and was found to meet all applicable US EPA and Mass DEP standards.

| Lead & Copper<br>Testing | Date<br>collected  | % w06         | Action<br>Level | Total #<br>of samples | # samples<br>above action<br>level | Possible Source of<br>Contamination                                     |
|--------------------------|--------------------|---------------|-----------------|-----------------------|------------------------------------|---|
| (pbp)                    | Q2 2019<br>Q4 2019 | 11.8<br>5.9   | 15              | 20                    | -0                                 | Corrosion of household plumbing systems;<br>Erosion of natural deposits |
| Copper (ppm)             | O2 2019<br>O4 2019 | 1.02<br>0.944 | 1.3             | 20                    | 00                                 | Corrosion of household plumbing systems;<br>Erosion of natural deposits |

| Turbidity                 | Treatment<br>Technique | reatment Lowest Monthly % Highest Detected of Samples | Highest Detected Daily | Violations | Possible Source of<br>Contamination |  |
|---------------------------|------------------------|---|------------------------|------------|-------------------------------------|--|
| Daily compliance<br>(NTU) | ç                      |   | 0.146 (Dec 4, 2019)    | ON         | Soil Runoff from Stormwater         |  |
| Monthly compliance        | 050, Min               | 0.036 / hipp 2040)                                    |                        | Ç.         | MO                                  |  |

\*Turbidity is a measure of the doudiness of the water. We monitor it because it is a good indicator of water quality. Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.

| Inorganic Contaminants | aminants           |   |  |                     |                     |                 |
|------------------------|--------------------|---|--|---------------------|---------------------|-----------------|
| Regulated Contisminant | Date(s) Collected  | Highest Result or<br>Highest Ruming<br>Average Detacted | Range Delacted   | MCL<br>or<br>MRDL   | MCLG or MRDLG       | Violation (Y/N) |
| Barium (ppm)           | 2011               | 0.0057  | N/A  | 2                   | 2                   | z               |
| Fluoride (ppm)         | 2011               | 80.0  | N/A  | 4                   | 4                   | z               |
| Nitrate (ppm)          | 22 Aug 2018        | 0.125   | N/A  | 10                  | 10                  | z               |
| *Possible BARIUM       | Contamination sour | ces include dischar                                     | ounces include discharge of drilling wastes, metal refineries, expelon of natural demosits | metal refineries er | Sion of natural dan | oeite           |

\*Possible FLOURIDE Contamination sources include natural deposits, discharge from fertilizer and aluminum factories \*Possible NITRATE Contamination sources include natural deposits, discharge from fertilizer and aluminum factories \*Possible NITRATE Contamination sources include runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits

| Other Organic Cont                        | Other Organic Contaminants and Unregulated VOC Contaminants | ulated V                       | 70C Con             | tamina | nts  |   |
|---|---|--------------------------------|---------------------|--------|------|---|
| Unregulated Conteminants                  | 년<br>Delej(s) Collectéd                                     | Result or<br>Range<br>Detected | Average<br>Detacted | SMCL   | ORSG | Possible Source   |
| Sodium (ppm)                              | 22 August 2018  | 6.33                           |                     | N/A    | 20   | contamination sources include discharge from<br>the use and improper storage of sodium-<br>containing de-dering compounds or in water-<br>softening agents. |
| Chloraform (ppb)                          | 15 November 2017  | 33.9                           |                     | N/A    | 70   | contamination sources include by-product of drinking water chorination (In non-chlorinated sources it may be naturally occurring)                           |
| Bromodichloromethane 15 November 2017     | 15 November 2017  | 4.8                            |                     | N/A    | N/A  | contamination sources include Trihalomethane;<br>by-product of drinking water chlorination  |
| Disinfection and Disinfection By-Products | infection By-Product  | s                              |                     |        |      |   |

| Distillection and Distillection Dy'l Iouucis  | non Dy't Iou       | ucus   |                        |           |                  |                    |
|---|--------------------|--|------------------------|-----------|------------------|--------------------|
| Regulated Contaminant   | Outstienty in year | Highest quarienty<br>Running Amusel<br>Average | Range                  | TO NOT    | MCLG or<br>MRDLG | Violation<br>(Y/N) |
| Total Trihalomethanes (TTHMs) (ppb)   | Q1 2019            | 51   | 31.8-51                | 80        | N/A              | z                  |
| Haloacetic Acids (HAA5) (ppb) Q1 2019   | Q1 2019            | 65   | 7.35-65                | 09        | N/A              | z                  |
| Chlorine (ppm)  | Q1 2019            | 1.28 average                                   | 0.67-1.96              | 4         | 4                | z                  |
| Sources of possible contamination chlorination by products from disinfection and industrial process | on chlorination by | r products from disir                          | nfection and industria | i process |                  |                    |

December 16, 2019

## MADEP Drinking Water Program: Water Quality Sampling Schedule

Page 1 of 3

Schedule of Required Water Quality Sampling For the Years: 2020 To 2022 PWS ID: 1113003 PWS Name: HOUSATONIC WATER WORKS

Popt: 1391 City/Town: GREAT BARRINGTON Class: COM

**BACTERIA SAMPLING** 

Refer to your Coliform Monitoring Plan for approved Coliform Sample locations

|                 | The Common Montain of approved Common Sample Iocations.  |
|-----------------|--|
| 2               | Raw Water: Additional Bacteria Sampling is Required from Each Treated and/or Disinfected Source.   |
| Location<br>ID# | ION 2020 2021 2022 2022 SAMPLE LOCATION MULT/SIN R/F D/S Y/N QTR1 QTR2 QTR3 QTR4 QTR1 QTR2 QTR3 QTR4 QTR1 QTR2 QTR3 QTR4   |
|                 | 41   |
| 10001           | 15 COMSTOCK LANE S F D   |
|                 | BACTERIOLOGICAL ANALYSIS   |
| POE             | POINT OF ENTRY BACTERIA S F D One or more distribution system colliform samples will be representative of the entry point of the distribution system.  |
|                 | BACTERIOLOGICAL ANALYSIS * Raw Water Bacteria Sample in addition to Distribution Samples   |
| RW1             | LONG POND RAW WATER S R S M M M M M M M M M M M M M M M M  |
|                 | GROSS ALPHA PARTICLE ACTIVITY  |
| 10531           | POINT OF ENTRY POST S F S [Next Sampling due in 2024] TREATMENT  |
|                 | THISWASTIS LONG POND (UTS)   |
|                 | HALOACETIC ACIDSBeginning in 2013, all Stage 2 Samples shall be taken during the second week of the month indicated  |
| 10003           | 10 DEPOT ROAD S F D FEB MAY AUG NOV FEB MAY AUG NOV FEB MAY AUG NOV  |
|                 | INORGANICS * includes Sodium   |
| 10531           | POINT OF ENTRY POST S F S N M X X X X X X X X X X X X X X X X X X  |
|                 | IRON   |
| 10531           | POINT OF ENTRY POST S F S MIX MINING TREATMENT S F S MIX MINING TREATMENT MINING THE STATE OF TH |
|                 | 1113003-01S LONG POND (01S)  |
| RW1             | LONG POND RAW WATER S X X X X X X X X X X X X X X X X X X  |
|                 | LEAD & COPPER SCHOOL SAMPLING  |

RVF = RAW OR FINISHED WATER; D/S = DISTRIBUTION OR SOURCE SAMPLE Waiver: (A)pplied, (Y)es, or (N)o M = Monthly Testing Required

<sup>\*\*</sup>Three letter abbreviations indicate required sampling months.

This monitoring schedule is based on the system's current inventory and is subject to change. Water systems are responsible for promptly reporting schedule errors or omissions. Errors or omissions on monitoring schedules do not prohibit the MassDEP from enforcing monitoring requirements set forth by the Regulations.

10531 10531 10531 10531 10531 RV1 10531 LCCA 10000 Location December 16, 2019 PWS ID D # POINT OF ENTRY POST TREATMENT POINT OF ENTRY POST TREATMENT POINT OF ENTRY POST TREATMENT POINT OF ENTRY POST POINT OF ENTRY POST SECONDARY CONTAMINANTS 1113003-018 1113003-01S LONG POND (01S) RADIUM 226 & RADIUM 228 1113003-01S POINT OF ENTRY POST PERCHLORATE 1113003-01S 2 TAPS@2 SCHOOLS/DAYCARES (ROTATE LIST) TREATMENT TREATMENT NITRITE 1113003-01S LONG POND RAW WATER NITRATE 1113003-01S 1113003-01S 20 APPROVED TAPS TREATMENT MANGANESE LEAD AND COPPER RULE LEAD & COPPER SCHOOL SAMPLING SAMPLE LOCATION 1113003 LONG POND (01S) PWS Name HOUSATONIC WATER WORKS Required Water Quality Sampling Schedule Frequency For: MULT/SIN S S S တ S တ S S π m n T 71 Z n 71 목 ഗ S S S S S ഗ O O D/S z WAIVER Z [DEP recommends annual testing] [Next Sampling due in 2024] QTR1 QTR2 QTR3 × × 2020 City/Town: × QTR4 × For the Years: **GREAT BARRINGTON** QTR1 QTR2 QTR3 × 2020 × 2021 7 QTR4 2022 Popl.: 1391 × QTR1 QTR2 QTR3 2022 Class: × × QTR4 Page 2 of 3 × ×

<sup>\*\*</sup>Three letter abbreviations indicate required sampling months. RIF = RAW OR FINISHED WATER; D/S = DISTRIBUTION OR SOURCE SAMPLE Waiver: (A)pplied, (Y)es, or (N)o M = Monthly Testing Required

This monitoring schedule is based on the system's current inventory and is subject to change. Water systems are responsible for promptly reporting schedule errors or omissions. Errors or omissions on monitoring schedules do not prohibit the MassDEP from enforcing monitoring requirements set forth by the Regulations.



### James J. Mercer < housatonicwater@gmail.com>

### **SB Meeting Invite**

1 message

Mark Pruhenski < MPruhenski@townofgb.org>
To: "James J. Mercer" < housatonicwater@gmail.com>

Thu, Jul 30, 2020 at 1:40 PM

Hi Jim,

At the last SB meeting, I was asked to invite you to our next regular session of August 10<sup>th</sup> at 6:00. I was also asked to invite someone from the DEP Drinking Water Program. Do you have any particular person there that you work with so I can reach out to extend an invite? Any contacts you can provide would be appreciated.

Best, Mark



### Mark Pruhenski

Town Manager

413-528-1619 ex 2

mpruhenski@townofgb.org

Pronouns: he/him/his

Town of Great Barrington

334 Main Street

Great Barrington MA 01230



The Secretary of State's office has determined that most e-mails to and from municipal offices and officials are public records. Consequently, confidentiality should not be expected.



### James J. Mercer < housatonicwater@gmail.com>

### FWD. MA DEP Correspondence

1 message

Mark Pruhenski < MPruhenski@townofgb.org> To: "James J. Mercer" < housatonicwater@gmail.com> Thu, Jul 30, 2020 at 5:39 PM

From: Pignatelli, Smitty (HOU) <smitty.pignatelli@mahouse.gov>

Sent: Monday, July 20, 2020 12:13 PM

To: Gorski, Michael (DEP); Gorski, Michael (DEP) Subject: Fwd: [External]: MADEP Correspondence

Can we help push this along? We continue to have good conversation with the town, the fire district and the water company about the long term plan. I'll be sure to keep you posted. Thanks

Smitty Pignatelli

State Representative

4th Berkshire District

Chairman, Joint Committee on Environment Natural Resources & Agriculture

State House Room 473F

413-637-0631

617-722-2210

Begin forwarded message:

From: "James J. Mercer" < housatonicwater@gmail.com>

**Date:** July 20, 2020 at 12:09:17 PM EDT

To: Mark Pruhenski < MPruhenski@townofgb.org>, "Pignatelli, Smitty - Rep. (HOU)"

<Smitty.Pignatelli@mahouse.gov>, "Hinds, Adam (SEN)" <Adam.Hinds@masenate.gov>

Subject: [External]: MADEP Correspondence

Hi.

Thank you all for meeting this morning. Attached is the letter that our engineer emailed MADEP this morning.

Any support that could be provided to help expedite the process would be greatly appreciated.

### Thank you,



### Mark Pruhenski

Town Manager

413-528-1619 ex 2

mpruhenski@townofgb.org

Pronouns: he/him/his

Town of Great Barrington

334 Main Street

Great Barrington MA 01230



The Secretary of State's office has determined that most e-mails to and from municipal offices and officials are public records. Consequently, confidentiality should not be expected.



James J. Mercer < housatonicwater@gmail.com >

# Re: Housatonic Water Works 1113003 recent Water Quality - MassDEP Direction 1 message

James J. Mercer < housatonicwater@gmail.com >

Sat, Aug 1, 2020 at 3:45 PM

To: "Doherty, Deirdre (DEP)" <deirdre.doherty@state.ma.us>

Cc: "Paine, Douglas (DEP)" <douglas.paine@state.ma.us>, "Harrington, Brian D (DEP)" <br/>
kebecca Jurczyk <rjurczyk@townofgb.org>, Jim Ericson <ericson@lenard-eng.com>, Rich Gullick <wcs.llc@comcast.net>, "Cox, Jr., Robert D." <RCOX@bowditch.com>

Ms.Doherty,

Please find our response letter.

Sincerely,

Jim



80 Maple Avenue, Suite1
Great Barrington, Massachusetts 01230
(413) 528-1780 phone
(413) 528-3024 fax
www.housatonicwater.com

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On Wed, Jul 29, 2020 at 4:06 PM Doherty, Deirdre (DEP) <deirdre.doherty@state.ma.us> wrote:

Mr. Mercer:

Attached is a letter providing MassDEP direction regarding operations and water quality at Housatonic Water Works in recent weeks. Please review and respond.

Respectfully,

**Deirdre Doherty** 

**Drinking Water Section Chief** 

MassDEP-Western Region

HWWCO Response 08012020.pdf

August 1, 2020

VIA EMAIL: deirdre.doherty@state.ma.us

Ms. Deirdre Doherty
Drinking Water/Municipal Services Chief
Bureau of Water Resources
Department of Environmental Protection (MassDEP)
436 Dwight Street
Springfield, MA 01103

RE: Housatonic Water Works Company

PWS ID # 1113003 Water Operation Water Quality

Dear Ms. Doherty:

Below are responses to your letter of July 29, 2020 compiled with the assistance of company engineers:

 MassDEP requires Housatonic to continue Special Monitoring as required in August 2018 and Housatonic may continue that monitoring at alternate locations approved in writing by MassDEP. The current approved alternate locations are: a. 314 N. Plain Road; and b. 2 Bernard Gibbons Drive (Gt. Barrington Housing Authority)

#### Response:

The Company has contracted Housatonic Basin to monitor at the MassDEP locations approved on July 29, 2020.

MassDEP requires Housatonic to explain its deviation from Housatonic's proposed minimum chlorine
residual target at the point-of-entry (POE). MassDEP also requires Housatonic to explain the anticipated
impact of high distribution system chlorine residuals given other factors, including temperature and the
distribution system material of construction, as well as, the anticipated impact of a reduction in
chlorine residual.

### Response:

The company adds chlorine in doses that are very appropriate for complying with the different related regulatory requirements. Specifically, enough chlorine must be added to (1) achieve the required disinfection performance (primary disinfection), and (2) maintain an adequate residual throughout the distribution system (secondary disinfection). As is evident from the data provided to MassDEP in our

80 Maple Avenue, Suite 1, Great Barrington, MA 01230

Monthly Operating Reports, we consistently achieve CT values for primary disinfection well above that required. As such, chlorine dosing is based primarily on maintaining an optimal chlorine residual concentration in the distribution system.

The previously proposed target POE chlorine concentration of 0.5 to 0.6 mg/L would not be sufficiently high enough to maintain adequate residual in the distribution system. Our goal is to have distribution system chlorine residuals in the range of 0.2 to 0.5 mg/L. Please note that the chlorine residual values you mentioned for May and June 2020 (0.21 to 0.41 mg/L) fall into this range.

Regarding the impact of chlorine concentration on corrosion, we discussed our position on that in our May 9, 2019 to letter to MassDEP (Section 3 on "Lowering chlorine levels may reduce corrosion"). MassDEP's June 19, 2019 reply stated that "HWW also asserts it will improve sampling procedures, reduce application of chlorine for primary disinfection (while meeting the required disinfection performance)... MassDEP is not persuaded by any of the arguments put forth by HWW. MassDEP cannot approve of this proposed approach." Given MassDEP's apparent position that lowering the chlorine level would not reduce corrosion, we are confused as to the reasoning behind MassDEP's request for us to explain the impact of "high distribution system chlorine residuals" on corrosion.

 MassDEP requires Housatonic to supply documentation of its water treatment plan analyzer calibrations to verify measurements.

### Response:

Company personnel periodically perform verifications of the accuracy of the online analyzers using bench instruments and grab samples. Calibration of the analyzers is conducted as needed based on results of the verifications and in accordance with the manufacturer's recommendations. In addition, a manufacturer's representative from KUNTZE performed calibrations in December 2019 and June 2020.

 MassDEP requires Housatonic to explain the variation in chlorine dosing at the water treatment plant and the variation in chlorine residual measured exiting the clearwell.

#### Response:

Our chlorine dosing strategy is described in Item #2 above. Chlorine is introduced post slow sand filters en route to the clearwell, and is sampled at two locations subsequent to the clearwell.

- 200-ft Tap: The first sample is obtained from a tap located 200' after mixing from the feed line to the 1.0 MG tank. This corresponds to the first primary disinfection segment for CT calculations.
- Point of Entry (POE): a second sample is drawn after the 1.0 MG tank at the point of entry.
   This corresponds to the second primary disinfection segment for CT calculations.

It is expected that larger variations in chlorine levels would be observed after Segment 1 compared to after Segment 2. The average water age in the 1-MG storage tank is relatively long, about 10 days. And though the water enters the storage tank at the top and exits at the bottom, it is not characterized as

plug flow, and the assumed baffling factor is 0.1. As such, the storage tank results in some mixing, which helps to level out changes in the chlorine concentration over time.

The consistency of our finished water chlorine concentrations has improved over time as a result of several factors, including the relatively new piping arrangement to the 1-MG storage tank, modifications to SCADA programming conducted in September 2019, and improved dosing strategy.

Note that the clearwell and tank were designed to accommodate average daily flows substantially larger than those the system currently experiences. Household metering, diminished industrial users and conservation efforts have greatly reduced average daily flows.

MassDEP requires Housatonic to provide MassDEP with its system flushing protocols. These protocols
include the flushing schedule and direction (source to dead ends), how long Housatonic flushes each
hydrant and the order of flushing through the system. MassDEP also requires Housatonic to document
whether Housatonic has followed its protocols in 2020.

### Response:

We confirm that the flushing conducted in 2020 followed the established protocols. The company follows a hydrant flushing sequence for 79 hydrants and blow-offs throughout its system. This protocol has been followed for many years. The flushing is broken into three sections to effectively flush those sections of the system and minimize disruption to other parts of the system. The main trunk line from the source intersecting North Plain Road, Van Deusenville Road to Park Street on the southern part of the distribution system bring water from the source which is then drawn sequentially through areas that are divided into sections as described below. Flushing in each of the three sections is conducted to minimize disturbances; however, flushing in general can cause occasional disturbances in other sections of the distribution system.

Section I consists of the transmission main running from the reservoir to the Division Street/North Plain Road, extending to the West Stockbridge Williamsville area. Section II consists of the Van Deusenville Road/downtown core, and extends to the Stockbridge Furnace area, whereas Section III consists primarily of Park Street from Ramsdell Road on the south to the Park Street bridge in the north. When Section I is being flushed, the transmission line to Section II at the intersection of North Plain Road and Main Street is shut off to provide unidirectional flushing. Likewise, when Section II is flushed, the North Plain Road and Main Street valve is closed, and the valve line at the Park Street Bridge is closed. Similarly, Section III is isolated from Sections I and II. Blow offs on secondary streets in each section are conducted upon completion of the primary lines in each section.

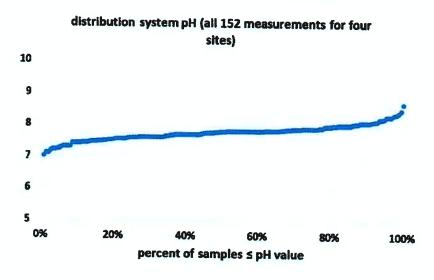
Flushing is conducted until the water is clear in appearance. During July 2020 the flushing times typically ranged from a low of 15 minutes to a maximum of 2 hours on the hydrants with two blow offs which were bled at slow rate for 8-9 hours, while two problematic areas were flushed for up to 72 hours. Chlorine residuals were also monitored at each location.

MassDEP requires Housatonic to explain in writing why it has not implemented approved treatment
that incorporates both pH adjustment to maintain a consistent pH and polyphosphate treatment to
coat pipes within the distribution system.

### Response:

We previously provided much of this explanation in detail to MassDEP in a letter dated May 9, 2019. A copy of that letter is attached for your reference.

The natural pH of the water is already quite consistent, with approximately 3/4 of the distribution system measurements ranging from a pH of 7.5 to 8.0 (see below plot that includes 152 measurements conducted by an independent certified laboratory at four different locations in 2018 to 2020). And not only is that already a good pH range for corrosion control, but it is higher than the range of 7.3 to 7.5 that MassDEP has recommended for corrosion control at other water systems.



We definitely do not want to raise pH prior to the 1-MG storage tank, as that would decrease the effectiveness of the chlorine disinfection process. Further, we are convinced that addition of a caustic there would actually result in a wider range of pH measurements than are currently observed in the natural water. Given the approximately 10-day contact time in the storage tank, it would be extremely difficult to adjust dosing well enough to achieve a consistent pH in the tank effluent since the impact of any changes in caustic dose made to the tank influent would not be observed for many days.

Previous discussion with MassDEP regarding corrosion control was focused on control of lead and copper. Polyphosphate is not an appropriate inhibitor for lead and copper corrosion (orthophosphate is typically used for that). Instead, polyphosphate is usually used for reducing iron corrosion. We are now appropriately considering the potential use of an ortho/polyphosphate blend for corrosion control.

We are in the process of hiring the Cornwell Engineering Group (Newport News, VA) to evaluate our water chemistry and lead us to an optimal solution for simultaneously controlling iron corrosion as well as lead and copper corrosion. Cornwell's team includes nationally recognized experts in corrosion chemistry

and control. We have sought out their expertise to help avoid any unintended adverse consequences that may result from changing distribution system water chemistry from addition of a new corrosion control chemical. We must be careful to not inadvertently increase lead and copper corrosion as a result of trying to control iron corrosion, with a resulting potential for adverse public health effects.

We believe that this approach demonstrates the sincere commitment that our company has toward addressing the corrosion issues and improving water quality for our customers.

Sincerely,

James J. Mercer

**Enclosure** 

CC:

Brian D Harrington, MassDEP (e-copy)

Douglas Paine, MassDEP (e-copy)

Rebecca Jurczyk, GB BOH (e-copy)

James Ericson, P.E., Lenard Engineering, Inc. (e-copy)

Richard W. Gullick, PhD, Water Compliance Solutions, LLC (e-copy)

Robert D. Cox, Jr., Esq., Bowditch & Dewey, LLP (e-copy)



May 9, 2019

VIA EMAIL: james.bumgardner@mass.gov

Jim Bumgardner
Drinking Water Program
Bureau of Water Resources
Massachusetts Department of Environmental Protection ("MassDEP")
Western Regional Office
438 Dwight Street
Springfield, MA 01103

RE: Housatonic Water Works PWS ID# 1113003

**BRP WS 34 Chemical Addition Retrofit** 

**Corrosion Control Treatment** 

Transittal # X280114

Dear Mr. Bumgardner,

The Housatonic Water Works Company (HWW) is under direction from MassDEP to develop and implement a corrosion control strategy to address exceedances of the Lead and Copper Rule (LCR) Action Levels for lead and copper. To meet those requirements, HWW contracted with Lenard Engineering, Inc. ("Lenard") to complete a desktop corrosion control study that was completed in December 2016, and a Basis of Design Report that was completed in October 2017. The results of that evaluation were to recommend a corrosion control system consisting of pH adjustment with potassium hydroxide and addition of a blended orthophosphate/polyphosphate corrosion inhibitor.

The recommended corrosion control system was set forth in HWW's BRP WS-34 Chemical Addition Retrofit for systems that serve less than or equal to 3,300 people permit application received by MassDEP on June 11, 2018, and deemed administratively complete on July 12, 2018. Following a Technical Deficiency Notice to obtain more information, MassDEP received on October 24, 2018 a response from Lenard with the information requested. On November 1, 2018 MassDEP issued its Conditional Permit Approval based on the above-referenced BRP WS-34 permit application and other relevant information received by MassDEP ("Conditional Approval"). The Conditional Approval provides that if any of the design parameters or equipment is modified, HWW must request approval in writing. This letter sets forth HWW's request for such approval as more fully described below.

While working to meet the requirements established by MassDEP, HWW has continued to evaluate the scientific and engineering aspects of both the lead and copper data and potential approaches for meeting the two LCR Action Levels. As part of that continued evaluation, new facts have recently come to light that were not considered by the previous engineering studies, and which HWW believes should be considered prior to constructing new chemical feed systems for meeting the LCR Action Levels.

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Tel: 413.528,1780
Fax: 413.528.3024
E-mail: housatonicwater@gmail.com
www.housatonicwater.com

Based on the new information that has been acquired, HWW is now proposing an alternative solution to effectively meet the LCR Action Levels that is simpler and does not include the many disadvantages that are associated with increasing pH and adding phosphate-based corrosion inhibitor chemicals. The facts that support this new proposed approach are presented below.

## 1. HWW is already very close to meeting the Action Levels:

HWW's water has never been far above the lead or copper Action Levels, and thus major changes to water chemistry — which can present various adverse unintended consequences — may not be needed.

There were ten (10) rounds of monitoring over the previous six years from 2013 to 2018. The lead 90<sup>th</sup> percentile values from those data are provided in Figure 1, and for copper in Figure 2.

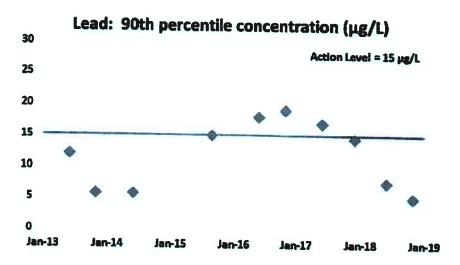


Figure 1. Lead 90th percentile concentration (2013 - 2018)

The following observations are evident from the lead 90th percentile data in Figure 1:

- Currently, the system is well below the lead Action Level, with a 90<sup>th</sup> percentile value of 5 µg/L.
- The lead 90<sup>th</sup> percentile value has decreased each of the past four rounds of sampling.
- The water system was above the lead 15 μg/L Action Level for three of the ten monitoring periods, from the first half of 2016 through the first half of 2017.
- The system was below the lead action level in each of the three most recent monitoring periods since then.

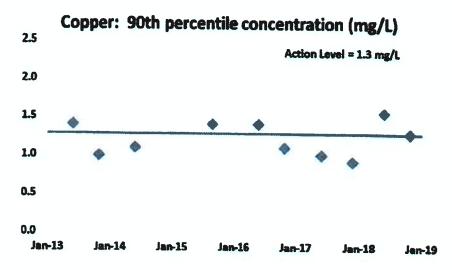


Figure 2. Copper 90th percentile concentration (2013 - 2018)

The following observations are evident from the copper 90th percentile data in Figure 2:

- The water system was above the copper 1.3 mg/L Action Level for four of the ten monitoring periods.
- None of the exceedances were by large amounts. Three of the four exceedances were by only 0.1 mg/L (i.e., were at 1.4 mg/L), and the other result was 1.6 mg/L, which is only 0.3 mg/L above the Action Level.
- Given the method by which 90<sup>th</sup> percentile values are determined, it wouldn't take a large
  decrease in the copper level at a single monitoring location (i.e., a single datum point) to have
  met the Action Level in those cases.
- The consistency of the copper 90<sup>th</sup> percentile values, and the closeness to meeting the Action Level, suggests that major operational changes may not be required, and that some small changes may be sufficient to meet the Action Level.

### 2. There are sampling errors in the LCR monitoring data:

It has come to the attention of HWW that several of the residents who performed the LCR sampling did not follow the proper sampling instructions that were provided to them. Notably, the residents at 366 North Plain Road and 314 North Plain Road have informed HWW that they used taps for sampling that had not been used for very long times, well above the maximum 18 hours that is allowed in Massachusetts for LCR sampling. These two locations are responsible for many of the high lead results. If those results were falsely high, then substituting lower lead values for the ones measured would result in only one exceedance of the lead Action Level instead of three during the 10 monitoring periods over the past six years, and that exceedance would have been by only 1  $\mu$ g/L.

HWW understands that the LCR does not allow for invalidating monitoring results due to excessive water age after the samples have been delivered to the Laboratory. As such, this observation will not change any of the previous Action Level exceedances. Nonetheless, HWW believes these sampling errors should be considered when determining a future course of action. As set forth below, HWW requests a delay in the implementation of the proposed corrosion control strategy (pH adjustment and corrosion inhibitor addition) so that HWW may first try to ensure all LCR samples are collected properly so that a true picture may be obtained of the lead and copper concentrations at the LCR monitoring locations.

### Lowering chlorine levels may reduce corrosion:

While chlorine is an excellent disinfectant, it is a corrosive chemical than can contribute toward corrosion of lead and copper. Chlorine increases the oxidation-reduction potential of water, potentially resulting in higher rates of lead and copper corrosion (USEPA, 2016). HWW has found three ways in which the level of chlorine used for primary disinfection may be lowered:

- i. HWW has already installed new piping to direct all finished water from the treatment plant through the 1 MG storage tank prior to distribution to the community. With this piping arrangement, the chlorine contact time in the storage tank counts toward disinfection credit. This has allowed for a reduction in the chlorine level necessary to meet the disinfection requirements.
- ii. It has recently come to the attention of HWW that excess chlorine has been used to meet the disinfection performance requirements as a result of using an instantaneous flow rate instead of the peak hourly flow rate in determining chlorine contact time for disinfection performance credit. HWW's SCADA system collects data every 30 seconds, for 2,880 readings per day. HWW has been using the one single highest of those 2,880 readings as the peak hourly flow. This means that we have been using the highest instantaneous flow rate during a day instead of the actual peak hourly flow. Peak hourly flow should be determined by finding the average flow rate for each of the 24 hours in a day, and then selecting the one hour with the highest average flow.

HWW is in the process of revising our data collection procedures to reflect using accurate peak hourly flow measurements instead of instantaneous flow readings when determining chlorine contact time. This will substantially increase the calculated chlorine contact time, thus allowing for a substantially lower chlorine dose to meet the primary disinfection requirements.

iii. HWW has been operating extremely conservatively in terms of exceeding the minimum required disinfection credit. For example, in March 2019 the Inactivation Ratio (IR) ranged from 6.9 to 14.1, and averaged 10.2. That average is over ten times the amount of disinfection required. While it is certainly prudent to exceed the minimum required amount by a large factor of safety, this approach may be considered overly conservative. As such, this provides another avenue by which the applied chlorine dose may be reduced.

It is apparent that lowering the chlorine levels could possibly reduce corrosion enough to consistently meet both Action Levels in the future. At minimum, HWW believes that trying this alternative first is a more prudent approach than proceeding at this time with constructing

corrosion control systems that will add at least three additional chemicals to the water and alter the water chemistry in some adverse ways.

HWW would prefer to first reduce the levels of chlorine, then allow the new water chemistry to reach equilibrium (or at least steady state) in the distribution system. Subsequent monitoring of lead and copper should help identify if this approach has been successful for meeting the Action Levels or not. This approach would allow for stabilizing the chlorine levels and establishing a baseline of LCR compliance data prior to deciding to construct a specific corrosion control treatment system.

### 4. Expected and potential adverse consequences:

Making changes to water chemistry often can result in various adverse consequences. The following are some of the disadvantages that corrosion control accomplished via raising pH and adding a phosphate-based corrosion inhibitor present:

- Higher pH will result in a reduced efficiency of secondary disinfection, as there would be less hypochlorous acid and more hypochlorite ion. Hypochlorous acid is a much more powerful disinfectant than hypochlorite ion.
- b. Higher pH is expected to result in increased trihalomethane formation.
- Higher pH will result in an increased hardness scaling in boilers, hot water heaters, and plumbing fixtures.
- d. Higher pH will result in an increased deposition of iron and other metals on plumbing fixtures (e.g., consumers would need to clean toilets more frequently).
- e. The current pH of the water is already at a typically good level for drinking water, and is relatively constant. For example, the vast majority of finished water pH readings range from 7.3 to 7.7, with a mean and median of 7.4. Recent data show the pH in the distribution system is already reasonably high with a median value of 7.8. Two locations in the distribution system were sampled 16 times between August 2018 and April 2019, and the mean and median pH was 7.8, with a range of 7.1 to 8.7 (Figure 3). While the addition of potassium hydroxide may increase pH, it is likely to result in a more varied pH than currently exists with the natural water. Control of pH via addition of strong bases or acids is not easy, and for some water systems results in a much more widely varying pH than is experienced by the raw water.

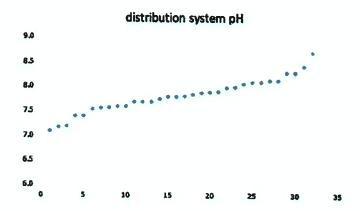


Figure 3. Distribution System pH readings (32 samples from August 2018 through April 2019, in increasing order)

- f. Addition of the corrosion inhibitor chemical will increased the contribution of phosphorus to the wastewater treatment plant influent, making it more difficult for the wastewater plant to achieve the strict phosphorus effluent limitations.
- g. All of the risks associated with the manufacture, transportation, storage, and use of the proposed hazardous water treatment chemicals, as well as with construction and operation of the chemical feed systems.
- h. Increased cost
- i. Increased demands on Operator time
- Potential unknown and unintended adverse impacts

### 5. LCR revisions are expected very soon:

The US Environmental Protection Agency has been working on revising the Lead and Copper Rule, and the new rule is expected to be proposed by USEPA within the next few months (summer 2019). HWW believes it would be prudent to first take the approach outlined above and see if that is successful, and during that time evaluate how the upcoming changes in the Lead and Copper Rule may affect the situation. Possible changes in the LCR may include new Action Levels, new sampling methods, and/or different requirements for treatment or other methods to meet the Action Levels.

It is important to note that the USEPA guide to corrosion control treatment (USEPA 2016) starts by deliberately stating that:

"The general descriptions provided here may not apply to a particular situation based upon the circumstances. Interested parties are free to raise questions and objections about the substance of these technical recommendations and the appropriateness of the application of those technical recommendations to a particular situation. EPA and other decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from those described in this document, where appropriate."

HWW believes that the unique circumstances of this situation, as described above, present an effective alternative to meeting the LCR Action Level requirements instead of the constructed treatment systems that were previously recommended.

Lastly, if the above approach is approved by MassDEP, HWW is willing to increase monitoring for lead and copper to a quarterly frequency for the next 12 to 18 months in order to more quickly determine if the proposed changes have had the desired effect on the observed lead and copper levels in the distribution system.

in summary, HWW proposes the following:

- 1. For now, delay construction of new chemical feed systems for raising pH and adding a corrosion inhibitor chemical;
- Improve the LCR sampling procedures conducted by the residents to assure no falsely high lead and copper results are obtained;
- 3. Reduce the applied chlorine dose for primary disinfection to reduce corrosion, while consistently meeting the required disinfection performance;
- 4. Evaluate the impact of the upcoming proposed changes to the LCR; and,
- Monitor lead and copper closely for the next 12 to 18 months to determine if the above approach was successful in meeting the Action Levels. If needed after that time, consider constructing the new chemical feed systems for additional corrosion control.

This approach would first test an alternative and simpler solution that does not involve the many public health, aesthetic water quality, and operational disadvantages that are known to result from increasing pH and adding a corrosion inhibitor chemical.

HWW and its engineers believe that MassDEP's approval of the forgoing is consistent with its November 1, 2018 Conditional Approval which, at Paragraph 1, noted "MassDEP considers the first year of treatment to be a demonstration study during which time HWW will be required to closely monitor the operation of the treatment system." MassDEP's approval of the foregoing is more likely to assure effective treatment following the completion of the demonstration study. HWW respectfully requests an approval in writing of the foregoing.

We thank you very much for your consideration of this request.

Regards,

James J. Mercer

Housatonic Water Works Company

James Menn

### References:

US Environmental Protection Agency, 2016. Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems. USEPA Office of Water. EPA 816-B-16-003, March 2016.

cc: James Ericson, P.E., Lenard Engineering, Inc. Robert D. Cox, Jr., Esq., Bowditch & Dewey LLP



James J. Mercer < housatonicwater@gmail.com>

### **HWWCO** information Meeting

1 message

James J. Mercer < housatonicwater@gmail.com> To: Mark Pruhenski < MPruhenski@townofgb.org>

Mon, Aug 3, 2020 at 9:34 AM

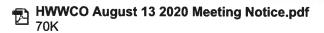
Hi Mark,

Notices for this meeting have been sent out in monthly bills, a separate post card and via social media. Jim



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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# HWWCO ZOOM MEETING

Housatonic Water Works Company, in accordance with our Settlement Agreement with the Department of Public Utilities (DPU 15-179) will be holding our first informational meeting for calendar year 2020. Due to COVID concerns we will host the meeting via ZOOM on August 13, 2020 to address recent water concerns. A presentation by the company's engineer will be featured as part of the presentation.

Please download Zoom in advance on your computer or tablet or dial in on your phone.

Meeting Date: August 13, 2020, 6:00 P.M.

# Computer/ Tablet Link Address:

https://us02web.zoom.us/j/82136448056?pwd=VnFmWWVOaURHb21raE9ZUnlza08zQT09

Passcode: 992677

# Telephone

(dial in, voice-only): 929 205 6099

Webinar ID: 821 3644 8056

Passcode: 992677



James J. Mercer < housatonicwater@gmail.com >

## Fwd: Housatonic Water Works 1113003 recent Water Quality - MassDEP Direction

1 message

James J. Mercer <housatonicwater@gmail.com>
To: Mark Pruhenski <MPruhenski@townofgb.org>

Tue, Aug 4, 2020 at 7:35 AM

Mark

This is the original DEPe-mail requested.



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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----- Forwarded message -----

From: Doherty, Deirdre (DEP) <deirdre.doherty@state.ma.us>

Date: Wed, Jul 29, 2020 at 4:06 PM

Subject: Housatonic Water Works 1113003 recent Water Quality - MassDEP Direction To: James J. Mercer (housatonicwater@gmail.com) <housatonicwater@gmail.com>

Mr. Mercer:

Attached is a letter providing MassDEP direction regarding operations and water quality at Housatonic Water Works in recent weeks. Please review and respond.

Respectfully,

**Deirdre Doherty** 

**Drinking Water Section Chief** 

MassDEP-Western Region

7

1113003-Housatonic-Water Quality-2020-07-29.pdf



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

Charles D. Baker Governor

Karyn E. Polito Lieutenant Governor Kathleen A. Theoharldes Secretary

> Martin Suuberg Commissioner

SENT VIA ELECTRONIC MAIL housatonicwater@gmail.com

Mr. James Mercer, Treasurer Housatonic Water Works 80 Maple Ave Ste 1 Great Barrington, MA 01230 July 29, 2020

DWP-Great Barrington Housatonic Water Works PWSID# 1113003 Water Operations Water Quality

Dear Mr. Mercer:

MassDEP has received complaints from customers of the Housatonic Water Works (Housatonic) that Housatonic is experiencing water quality problems in the last few weeks. In connection with its review of those complaints, MassDEP has reviewed May through July 2020 submittals from Housatonic regarding special monitoring, potential phosphate treatment, routine water quality submittals and routine operations reports.

MassDEP is providing the following direction to Housatonic to address operational and water quality questions and concerns:

- 1. MassDEP requires Housatonic to continue Special Monitoring as required in August 2018 and Housatonic may continue that monitoring at alternate locations approved in writing by MassDEP. The current approved alternate locations are:
  - a. 314 N. Plain Road; and
  - b. 2 Bernard Gibbons Drive (Gt. Barrington Housing Authority)
- 2. MassDEP requires Housatonic to explain its deviation from Housatonic's proposed minimum chlorine residual target at the point-of-entry (POE). Housatonic proposed the target residual within the 2017 water treatment plant changes related to its new approach for reaching the required contact time requirements of the Surface Water Treatment Rule.

Y:\DWPArchive\WERO\Great Barrington-1113003-Water Quality-2020-07-29This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

Housatonic proposed and MassDEP approved, a target residual POE Chlorine of 0.5 or 0.6 mg/l, depending on water temperature. Recently, POE has ranged from 1 to 1.89 mg/l. Measured chlorine residual within the distribution system in May was 0.24 & 0.21 mg/L and in June 0.37 and 0.41 mg/L according to the Chlorine/Chloramine Reports. MassDEP also requires Housatonic to explain the anticipated impact of high distribution system chlorine residuals given other factors, including temperature and the distribution system material of construction, as well as, the anticipated impact of a reduction in chlorine residual.

- 3. MassDEP requires Housatonic to provide documentation of its water treatment plant analyzer calibrations to verify measurements.
- 4. MassDEP requires Housatonic to explain the variation in chlorine dosing at the water treatment plant and the variation in chlorine residual measured exiting the clearwell.
- 5. MassDEP requires Housatonic to provide MassDEP with its system flushing protocols. These protocols include the flushing schedule and direction (source to dead ends), how long Housatonic flushes each hydrant and the order of flushing through the system. MassDEP also requires Housatonic to document whether Housatonic has followed its protocols in 2020.
- 6. MassDEP requires Housatonic to explain in writing why it has not implemented approved treatment that incorporates both pH adjustment to maintain a consistent pH and polyphosphate treatment to coat pipes within the distribution system.

If you have questions concerning tis matter, please direct them to me at (413) 755-2148 or Deirdre.doherty@mass.gov or Douglas Paine at (413) 755-2281 or <u>Douglas.paine@mass.gov</u>. Please note that we will check voicemails regularly, but electronic mail communication is preferred.

Respectfully,

Deirdre Doherty

Drinking Water Section Chief Bureau of Water Resources

Cc: DWP-Boston

DEP-WERO (e-copy)-B Harrington, D. Paine (eCopy) Great Barrington Board of Health

W:\BWR\WS\Discolored Water\1113003-Housatonic-Water Quality-2020-07-29



James J. Mercer <housatonicwater@gmail.com>

## Re: Housatonic Water Works 1113003 recent Water Quality - MassDEP Direction

1 message

Mark Pruhenski < MPruhenski@townofgb.org> To: "James J. Mercer" <housatonicwater@gmail.com> Tue, Aug 4, 2020 at 7:40 AM

Got it....thanks Jim!

Sent from my iPhone

On Aug 4, 2020, at 7:36 AM, James J. Mercer <housatonicwater@gmail.com> wrote:

Mark.

This is the original DEPe-mail requested.



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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Forwarded message ------

From: Doherty, Deirdre (DEP) <deirdre.doherty@state.ma.us>

Date: Wed, Jul 29, 2020 at 4:06 PM

Subject: Housatonic Water Works 1113003 recent Water Quality - MassDEP Direction To: James J. Mercer (housatonicwater@gmail.com) <housatonicwater@gmail.com> Cc: Paine, Douglas (DEP) <douglas.paine@state.ma.us>, Harrington, Brian D (DEP)

<bri>d.harrington@state.ma.us>

Mr. Mercer:

Attached is a letter providing MassDEP direction regarding operations and water quality at Housatonic Water Works in recent weeks. Please review and respond.

Respectfully,

**Deirdre Doherty** 

**Drinking Water Section Chief** 

MassDEP-Western Region

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

<1113003-Housatonic-Water Quality-2020-07-29.pdf>



James J. Mercer < housatonicwater@gmail.com>

### **HWWCO Mtg**

1 message

James J. Mercer < housatonicwater@gmail.com> To: Mark Pruhenski < MPruhenski@townofgb.org> Fri, Aug 7, 2020 at 3:20 PM

### Sent from my iPhone

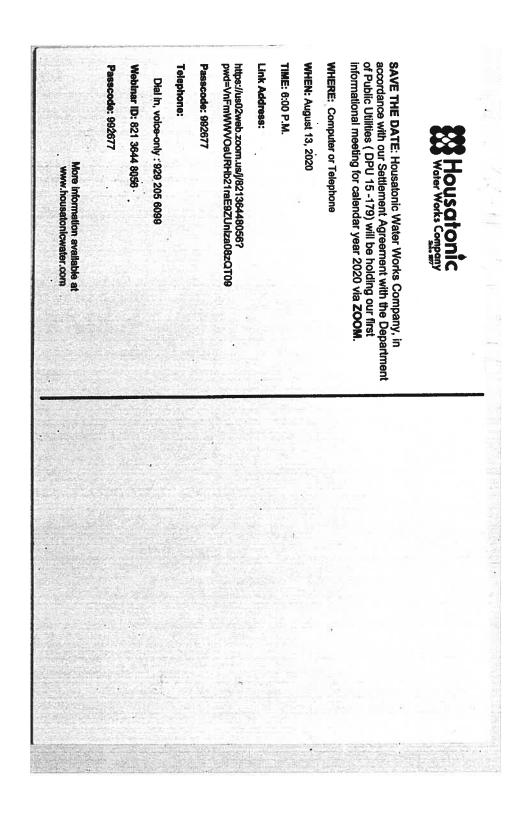
### 2 attachments

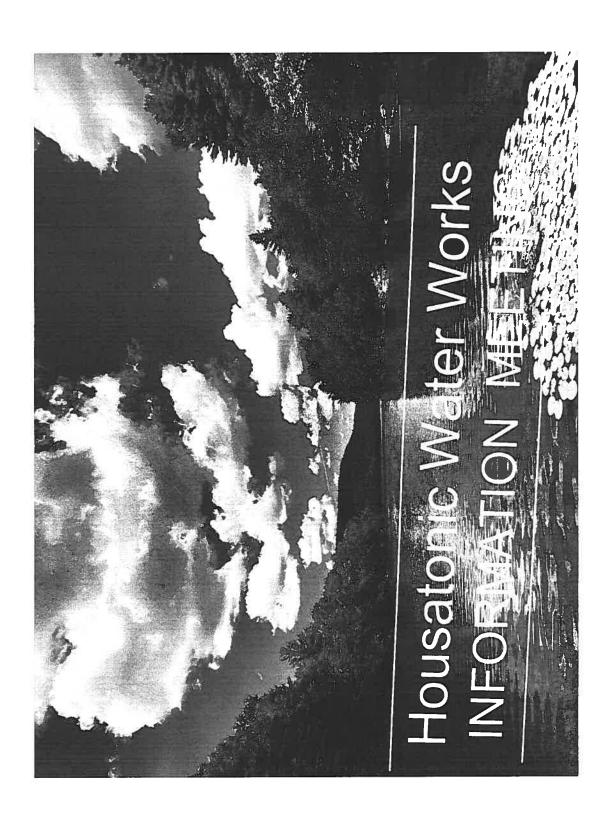


IMG\_2902.jpg 2154K



IMG\_2900.jpg 4427K





Gmail - DPU



### James J. Mercer < housatonicwater@gmail.com>

### **DPU**

12/14/2020

1 message

Mark Pruhenski < MPruhenski@townofgb.org> To: "James J. Mercer" < housatonicwater@gmail.com> Wed, Aug 12, 2020 at 2:38 PM

Jim,

I was asked at the SB meeting to invite someone from the DPU to our next meeting on the 24<sup>th</sup>. Do you have a contact there that you can share with me? -m



### Mark Pruhenski

Town Manager

413-528-1619 ex 2

mpruhenski@townofgb.org

Pronouns: he/him/his

Town of Great Barrington

334 Main Street

Great Barrington MA 01230



The Secretary of State's office has determined that most e-mails to and from municipal offices and officials are public records. Consequently, confidentiality should not be expected.



### James J. Mercer < housatonicwater@gmail.com >

Re: DPU 1 message

James J. Mercer < housatonicwater@gmail.com > To: Mark Pruhenski <MPruhenski@townofgb.org>

Thu, Aug 13, 2020 at 10:35 AM

Here you go:

Nancy Stevens. Director of Consumer. Department of Public Utilities. One South Station Boston, MA 02110. Nancy.stevens@state.ma.us. 617 -305-3745.



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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On Wed, Aug 12, 2020 at 2:39 PM Mark Pruhenski <MPruhenski@townofgb.org> wrote:

Jim,

I was asked at the SB meeting to invite someone from the DPU to our next meeting on the 24<sup>th</sup>. Do you have a contact there that you can share with me? -m



Mark Pruhenski

Town Manager

413-528-1619 ex 2

mpruhenski@townofgb.org

Pronouns: he/him/his



James J. Mercer <housatonicwater@gmail.com>

### Fwd: MassDEP correspondence on Water Quality 2020-08-12

1 message

James J. Mercer < housatonicwater@gmail.com > To: Mark Pruhenski <MPruhenski@townofgb.org> Thu, Aug 13, 2020 at 10:36 AM

FYI



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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----- Forwarded message ------

From: Doherty, Deirdre (DEP) <deirdre.doherty@state.ma.us>

Date: Wed, Aug 12, 2020 at 6:02 PM

Subject: MassDEP correspondence on Water Quality 2020-08-12

To: James J. Mercer (housatonicwater@gmail.com) <housatonicwater@gmail.com>

Cc: Harrington, Brian D (DEP) <br/>
<br/>
brian.d.harrington@state.ma.us>, Paine, Douglas (DEP) <douglas.paine@state.ma.us>

MassDEP is sending the attached correspondence to Housatonic Water Works in response to Housatonic's August 1, 2020 letter response and water quality/operations concerns. Attached are also the recent May and June 2020 monthly submittals noted in the correspondence for reference.

Please contact me with any questions.

Respectfully,

**Deirdre Doherty** 

**Drinking Water Section Chief** 

3 attachments

HWWCO June 2020 .pdf 2247K

HWWCO May 2020 .pdf

2344K



1113003-Housatonic-Water Quality-2020-08-12.pdf 2983K



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

Charles D. Baker Governor

Karyn E. Polito Lieutenant Governor Kathleen A. Theoharides Secretary

> Martin Suuberg Commissioner

SENT VIA ELECTRONIC MAIL housatonicwater@gmail.com

Mr. James Mercer, Treasurer Housatonic Water Works 80 Maple Ave Ste 1 Great Barrington, MA 01230 August 12, 2020

DWP-Great Barrington Housatonic Water Works PWSID# 1113003 Water Operations Water Quality

Dear Mr. Mercer:

MassDEP received your response dated August 1, 2020 to the July 29, 2020 MassDEP correspondence address operations and water quality questions and concerns. This letter follows up on your response, as MassDEP determined that Housatonic Water Works ("HWW" or "Housatonic") may not have understood some of the request or provided an incomplete response to some items.

The letter follows the same item list found in the July 29, 2020 MassDEP letter. And adds a new topic and request for information.

- 1. MassDEP requires Housatonic to continue Special Monitoring as required in August 2018 and Housatonic may continue that monitoring at alternate locations approved in writing by MassDEP. The current approved alternate locations are:
  - a. 314 N. Plain Road; and
  - b. 2 Bernard Gibbons Drive (Gt. Barrington Housing Authority)

MassDEP understands HWW will continue the required monitoring as HWW indicated. MassDEP requires that the water quality results be provided in writing to MassDEP within 24 hours of receipt. Submit results to Deirdre.doherty@mass.gov.

Y:\DWPArchive\WERO\Great Barrington-1113003-Water Quality-2020-08-12This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370 MassDEP Website: www.mass.gov/dep 2. MassDEP requires Housatonic to explain its deviation from Housatonic's proposed minimum chlorine residual target at the point-of-entry (POE). Housatonic proposed the target residual within the 2017 water treatment plant changes related to its new approach for reaching the required contact time requirements of the Surface Water Treatment Rule (SWTR). Housatonic proposed and MassDEP approved, a target residual POE Chlorine of 0.5 or 0.6 mg/l, depending on water temperature. Recently, POE has ranged from 1 to 1.89 mg/l. Measured chlorine residual within the distribution system in May was 0.24 & 0.21 mg/L and in June 0.37 and 0.41 mg/L according to the Chlorine/Chloramine Reports. MassDEP also requires Housatonic to explain the anticipated impact of high distribution system chlorine residuals given other factors, including temperature and the distribution system material of construction, as well as, the anticipated impact of a reduction in chlorine residual.

HWW's response states that HWW has, at some point, set a goal of 0.2-0.5 mg/l chlorine residual within the distribution, beyond the point-of-entry location. HWW states this is in part to ensure compliance with the SWTR. HWW's monthly operation reports show that contact time is much higher than the minimum required for compliance with the SWTR. HWW's point of entry chlorine residual is regularly 1.0 mg/l or higher (June 27 was 1.9 mg/l average during peak flow). The SWTR's minimum residual required at the point-of-entry location is 0.2 mg/l. HWW's June distribution residuals were 0.37 and 0.41 mg/l. SWTR standards require a measurable residual (such as 0.05 mg/l) or adequate Heterotrophic Plate counts within the distribution system.

Given the unlined iron piping in HWW's distribution and current warm water temperatures, the upper range of the distribution chlorine residual goal: 0.3, 0.4 and 0.5 mg/l is high. The high chlorine residuals are likely related to discolored water experienced by HWW customers.

MassDEP requires HWW to (1) provide a written justification of this distribution residual goal, providing the operational basis for this target and detailing both the positive and negative impacts of such operations, including the potential for discolored water; (2) identify any seasonal adjustments HWW has made and (3) provide the Operation and Maintenance manual pages that reflect the goal, any seasonal adjustments in operation and the operational tasks to achieve the stated distribution residual goal.

3. MassDEP requires Housatonic to provide documentation of its water treatment plant analyzer calibrations to verify measurements.

HWW response indicates verifications and calibrations are periodically done and that the instrument representative calibrated the equipment in June 2020. MassDEP requires HWW to (1) provide the date in June 2020 of the instrument representative's calibration and (2) provide documentation in the form of a copy of its instrument calibration log book pages (or other similar record) documenting each verification and calibration of its equipment for the months of March 2020 through July 2020.

4. MassDEP requires Housatonic to explain the variation in chlorine dosing at the water treatment plant and the variation in chlorine residual measured exiting the clear well.

HWW's response did not address the concern cited by MassDEP. The question concerned the clearwell/Segment 1. MassDEP will describe in more detail its concerns in this letter. MassDEP has attached the May and June 2020 monthly operating reports (the SWTR and Chemical Addition forms) for your reference.

For Segment 1, MassDEP notes the peak flow is steady, as is the contact time. MassDEP notes the daily 'total treated water' volume has some variation (about 10%) but the daily Segment 1 chlorine concentration varies on a daily basis. MassDEP requires that HWW clarify if the 'total treated water' reported on the Chem Add form is the water from Segment 1 where the chlorine is added, or the water entering the distribution system after Segment 2. This will aid in understanding operations.

For example, looking at the last week or June (June 24-30) and HWW's the chlorine concentrations:

| Date   | Seg. 1        | Seg. 1   | Seg. 1    | Point-of-       | Total Contact          | Total tre | ated |
|--------|---------------|----------|-----------|-----------------|------------------------|-----------|------|
| (June) | Chlorine      | Chlorine | Contact   | Entry           | Time ratio (Seg.       | water ga  | als) |
| •      | concentration | dose     | Time      | Chlorine        | 1 & 2, must $\geq 1$ ) | [         |      |
|        | (mg/l)        | (mg/l)   | (minutes) | residual (mg/l) | 17                     |           |      |
| 24     | 1.18          | 3        | 145       | 1.3             | 65.9                   | 113,370   |      |
| 25     | 2.75          | 2.7      | 142       | 1.01            | 56.5                   | 128,707   |      |
| 26     | 0.90          | 2.7      | 146       | 1.02            | 48.4                   | 125,827   |      |
| 27     | 0.29          | 3.5      | 158       | 1.9             | 74.8                   | 111,964   |      |
| 28     | 1.71          | 3.6      | 159       | 1.4             | 80.9                   | 108,196   |      |
| 29     | 2.54          | 3.7      | 148       | 1.41            | 87.0                   | 104,782   |      |
| 30     | 3.65          | 3.4      | 146       | 1.84            | 116.4                  | 101,638   |      |

MassDEP requires HWW to (1) explain in writing the wide variation of Segment 1 chlorine concentrations while other factors did not vary so greatly; (2) provide a written evaluation on (a) the effect of reducing chlorine used to meet SWTR contact time requirements and (b) HWW's rationale for its SWTR contact time practices; (3) explain in detail the hours of water treatment plant operation (i.e. from 8a.m.-4 p.m.) and (4) provide the flow rate into and out of the clearwell (Segment 1) for the months of May through July 2020.

5. MassDEP requires Housatonic to provide MassDEP with its system flushing protocols. These protocols include the flushing schedule and direction (source to dead ends), how long Housatonic flushes each hydrant and the order of flushing through the system. MassDEP also requires Housatonic to document whether Housatonic has followed its protocols in 2020.

HWW responded with a description of its flushing practices. MassDEP expects to find the procedures for flushing within its Operations and Maintenance manual at the Sanitary Survey.

6. MassDEP requires Housatonic to explain in writing why it has not implemented approved treatment that incorporates both pH adjustment to maintain a consistent pH and polyphosphate treatment to coat pipes within the distribution system.

MassDEP has not concluded that the pH is not stable at HWW. If HWW submits a permit application for a treatment change involving a phosphate/phosphate blend, HWW will at that time be required to provide sufficient documentation to address the pH and its stability throughout the calendar year. MassDEP notes that the pH of the chlorinated water from Segment 1 appears to be altered by its passage through new cement lined piping between the treatment plant and concrete storage tank and the concrete material of the storage tank.

The new information requested of Housatonic Water Works:

MassDEP requires that HWW provide MassDEP written log of water main or joint breaks and leaks and known service connection breaks and leaks between July 2018 and August 2020. For each event, HWW shall provide the date, the pipe/joint material, the location of the break/leak and what the specific problem was (break/leak/other).

MassDEP requires a response to all of the above information request as soon as practical but no later than August 20<sup>th</sup>, 5 p.m. by email to the MassDEP emails below.

If you have questions concerning this matter, please direct them to me at (413) 755-2148 or Deirdre.doherty@mass.gov or Douglas Paine at (413) 755-2281 or <u>Douglas.paine@mass.gov</u>. Please note that we will check voicemails regularly, but electronic mail communication is preferred.

Respectfully.

Deirdre Doherty

Drinking Water Section Chief Bureau of Water Resources

Cc: DWP-Boston

DEP-WERO (e-copy)-B Harrington, D. Paine (eCopy) Great Barrington Board of Health

W:\BWR\WS\Discolored Water\1113003-Housatonic-Water Quality-2020-08-12



# Massachusetts Department of Environmental Protection - Drinking Water Program CHEMICAL ADDITION REPORT - 310 CMR 22.15(4) Chemical Addition Reporting Requirements

C-ADD

| PWS Name <sup>1</sup> ;<br>Treatment Plant   | On - Refer to "Massatti?" Chemical Addition Report Guid<br>Housatonic Water Works  |                                   |                                    |                         |  |   | Sanfington  | PWBID1:                           | 9  |  |
|--|--|-----------------------------------|------------------------------------|-------------------------|--|---|---|-----------------------------------|--|--|
| Nama <sup>2</sup>                            | Long Pond  |                                   |                                    | Treatment Plant (Da*:   | 1113003-01T                                |   | Reporting<br>Month  |                                   |  |  |
| Chamles & Co                                 | Operational Information  |                                   |                                    |                         |  |   | Reporting Year <sup>a</sup>                                 |                                   |  |  |
| Chemical Name                                |  | odium hype                        | ochlorite                          |                         | Purchased Strength (%)                     | 12.5  | T Te  | rget Range/min <sup>†2</sup>      | ≥ 0.5 mg/L at POE  |  |
| Manufacturer <sup>4</sup> :                  | Clark Of and a control of the state of the s |                                   | Purchased Density (lbs/gal)*:      | 9.97                    | Target Dose (mg/L)                         |   |   |                                   |  |  |
| Product Name:                                | sodium hypochiorite (12.5% bleach)   |                                   | Dilution Factor or Mix Ratio*:     | 1,00                    | Alarm Setting (low) <sup>5</sup>           |   |   |                                   |  |  |
| leason for Adding<br>Chemical <sup>T</sup> : | Disinfection - Segment #1 and Segment #2   |                                   | MSF Approved (YAN) <sup>11</sup> : | Υ                       | Alarm Setting (high) <sup>14</sup> :       |   |   |                                   |  |  |
|  |  |                                   |                                    |                         | 0:   | to of last anti-eip   | hon valve inspecti  | on/replacement <sup>st</sup>      | NA NA  |  |
| Daily Reportin                               |  | Pione                             | : Pinterqual                       | ity data repor          | ted on C-ADD form may also be o            | considered for on   | abpavos barboses  |                                   |  |  |
| Day  | Treated Water<br>Volume (gal) <sup>50</sup>  | Missoured Chemical<br>Used        |                                    | Calculated<br>Chemical  |  | Personetare Measured*, Results, Units and Method-<br>(Girab or Continuous (A)natycer*  a. chiorine b. chiorine c. |   | G&M Notes/Comments <sup>©</sup>   |  |  |
|  |  | Volume<br>(gal/day) <sup>17</sup> | Weight<br>(ibelday)                | Used (Dej <sup>ts</sup> | Chemical Desage (mg/L) <sup>20</sup>       | rosidual at end of<br>Segment 1 (mg/L)<br>via Kontre<br>analyzer  |   | <b>e</b>                          | PAVS note any equipment brasildeem, off-thre status,<br>changes in purchased product or batch mising day,<br>measured personators or decages that are out of<br>Sarget range, etc. |  |
|  |  |                                   |                                    |                         |  | DG ⊠A   | □G ØA   |                                   |  |  |
| 3 11 3 11                                    | 88086  | 1.9                               |                                    | 2.37                    | 3.2  | 1.60  | 1.63  |                                   |  |  |
| 2  | 100043   | 1.9                               |                                    | 2.87                    | 2.8  | 2.13  | 1.53  |                                   |  |  |
| 3  | 111869   | 1.9                               |                                    | 2.37                    | 2.5  | 2.22  | 1.57  |                                   |  |  |
|  | 96973  | 1.9                               |                                    | 2.37                    | 2.9  | 2.07  | 1.95  |                                   |  |  |
| - 18   | 98937  | 1.9                               |                                    | 2.37                    | 2.9  | 1.21  | 1.92  |                                   |  |  |
| 7  | 102225   | 1.9                               |                                    | 2,37                    | 28   | 1.02  | 1.80  |                                   |  |  |
|  | 98077  | 1.9                               |                                    | 2.57                    | 3.0  | 1.15  | 1.76  |                                   |  |  |
|  | 98413  | 1.9                               | E                                  | 2.37                    | 2.9  | 1.26  | 1.60  |                                   |  |  |
| 10   | 95793  | 1.9                               |                                    | 2.37                    | 3.1  | 3.18  | 1.62  |                                   |  |  |
| 11   | 101754   | 2.3                               |                                    | 2.87                    | 8.6  | 1.35  | 1.87  |                                   |  |  |
| 12   | 107794   | 2.3                               |                                    | 2.87                    | 3.4  | 2.58  | 1.88  |                                   |  |  |
| 15   | 105969   | 2.3                               |                                    |                         | 3.2  | 1.87  | 1.72  |                                   |  |  |
| 14   | 104869   | 2.3                               |                                    | 2.87                    | 3.2  | 1.48  | 1.66  |                                   |  |  |
| 15   | 99852  | 2.3                               | 7 7 9                              |                         | 3,3  | 2.18  | 1.67  |                                   |  |  |
| 16   | 105262   | 2.3                               |                                    | 2.87                    | 3.5  | 1.84  | 1.69  |                                   |  |  |
| 17   | 101498   | 2.3                               |                                    | 2.87                    | 3.9  | 1.75  | 1.72  |                                   |  |  |
| 16   | 100882   | 23                                | -                                  | 2.87                    | 3.4  | 2.61  | 1.61  |                                   |  |  |
| 10   | 101133   | 23                                | -                                  | 2.87                    | 3.4  | 2.04  | 1.79  |                                   |  |  |
| 20   | 108368   | 23                                |                                    | 2.87                    | 3.4  | 2.58  | 1.84  |                                   |  |  |
| 21   | 108893   | 23                                |                                    | 2.87                    | 3.2  | 3.07  | 1.89  |                                   | 1 2  |  |
| 22   | 110771   | 2.3                               |                                    | 2.87                    | 8.2  | 1.73  | 1.39  |                                   |  |  |
| 23   | 118856   | 2.3                               |                                    | 2.67                    | 3.1  | 2.58  | 1.55  |                                   | 4  |  |
| 24   | 125142   | 2,3                               |                                    | 2.87                    | 2.9  | 1.81  | 1.57  |                                   |  |  |
| 26   | 115586   | 2.3                               |                                    | 2.87                    | 2.8  | 2.06  | 1.63  |                                   |  |  |
| 26   | 121330   | 2.3                               |                                    | 2.87                    | 3.0  | 1.90  | 1.51  |                                   |  |  |
| 27   | 126624   | 2.3                               |                                    | 2.87                    | 2.8  | 1.83  | 1.47  |                                   |  |  |
| 26   | 100530   | 2.3                               |                                    | 2.87                    | 2.7<br>3.4                                 | 2.10  | 1.65  |                                   |  |  |
| 29   | 113526   | 2.3                               |                                    | 2.87                    | 8.4  | 1.84  | 1.56  |                                   |  |  |
| 80   | 122368   | 2.3                               |                                    | 2.87                    | 2.8  | 2.18  | 1.50  |                                   |  |  |
| 31   | 121872   | 2.3                               |                                    | 2.07                    | 2.8  | 2.22  | 1.38  |                                   |  |  |
| Total  |  | -                                 | -                                  |                         | 2.6<br>of days the residual was off-target | 1.52<br>for the month ffrom   | 1.30<br>Bection ID Month                                    | tu Ternet                         |  |  |
| 14/85  | 3296987  | 67.7                              |                                    | Bummary <sup>23</sup>   |  | menun (ilu  |   |                                   | 0  |  |
| acribe result (daily:<br>instrumentation us  | everage, min/mex,<br>ed (SCADA, chart i  | instanteneous<br>recorder, test   | s reading, gri<br>idi, bench, d    | ab, etc.) samp          | io location (entry-point, before/after     | filters, tanks, etc.)   | form and the infor<br>the best extent of                    | mation contained<br>my knowledge. | em the porson entherteed to fill out the<br>herein is true, accurate and complete to   |  |
|  | Chlorine is monitored continuously via a Kumba enalyzer. Daily chlorine readual values provided are for the  |                                   |                                    |                         |  |   | PWS Authorized Person -<br>Signature & Date <sup>24</sup> : |                                   | prus Mecon 6.  |  |
|  |  | g the hour or                     | best hourly<br>by via a Kurri      | now.<br>20 enalyzer. D  | ally chlorine residual values provide      |   |   | Print Name:                       | James J. Mercer Primary Certified Operator   |  |



## Massachusetts Department of Environmental Protection - Drinking Water Program TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

**SWTR** F

| PWSID#:   | 1113003 Pt                          | NS Name: Housatonic Wa                        |  |  |  |  |  |  |
|---|-------------------------------------|---|--|--|--|--|--|--|
|   |                                     | 7700000000 770                                | ta vidro   | PWS Town: Great Barrington   |  |  |  |  |
| i reau  | nent Plant Name:                    | Long Pond                                     | Reporting Period - Month:                        | May Year: 2020   |  |  |  |  |
|   |                                     |   |  |  |  |  |  |  |
| Filtered  | Water Turbidity Measured:           | (check only one)  Growbined Filter Eff        | uent □ Individual Filter Effluent <sup>1</sup> □ | The state of the s |  |  |  |  |
| Filtered Water Turbidity Measured: (check only one)  Combined Filter Effluent   Individual Filter Effluent   Clearwell   Plant Effluent |                                     |   |  |  |  |  |  |  |
|   | tration Convent                     | ional Direct Alternative                      | Monthly Turbidity (95%) NTU Limit = 0.3          | Mex Day Turbidity NTU Limit = 1  |  |  |  |  |
| Technology:   |                                     | nd Diatomaceous Earth                         | Monthly Turbidity (96%) NTU Limit = 1            | Max Day Turbidity NTU Limit = 5  |  |  |  |  |
| Day   | Max Filtered Water                  |   | Number of Turbidity Measure waste                |  |  |  |  |  |
|   | Turbidity Result <sup>2</sup> (NTU) | Number of Turbidity Measurements <sup>3</sup> | ≤ Monthly (95%) NTU Limit <sup>4</sup>           | Number of Turbidity Measurements   |  |  |  |  |
|   | 0.045                               | 6   | 6  | Max Day NTU Limit <sup>5</sup>   |  |  |  |  |
|   | 0.046                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.047                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.050                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.058                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.050                               | 8   | 6  | O C  |  |  |  |  |
|   | 0.052                               | 6   | 8  | 0  |  |  |  |  |
|   | 0.052<br>0.058                      | 6   | 6  | 0  |  |  |  |  |
|   |                                     | 6   | 8  | O  |  |  |  |  |
| 8889988 I   | 0.044                               | 6   | 8  | 0  |  |  |  |  |
|   | 0.046                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.042                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.047                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.042                               | 8   | 8  | 0  |  |  |  |  |
|   | 0.046                               | 6   | 6  | 0  |  |  |  |  |
| 7   | 0.043                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.068                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.053                               | 6   | 6  | 0  |  |  |  |  |
| 20  | 0.051                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.046                               | 8   | 6  | 0  |  |  |  |  |
|   | 0.045                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.042                               | 6   | 8  | 0  |  |  |  |  |
| 24  | 0.049                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.060                               | 6   | 6  | 0  |  |  |  |  |
| 28  | 0.045                               | 6   | 6  | 0  |  |  |  |  |
| 27  | 0.045                               | 6   | 6  | 0  |  |  |  |  |
| 28  | 0.043                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.057                               | 6   |  | 0  |  |  |  |  |
| 36  | 0.051                               | 6   | 6  | 0  |  |  |  |  |
|   | 0.045                               | 6   | 6  | 0  |  |  |  |  |
| Totals:   |                                     | 186   |  | 0<br>% Turbidity Meeting 86% Limit   |  |  |  |  |
|   |                                     | A   | 186  | B/A x 100 % = X  |  |  |  |  |
|   |                                     |   | В  | (Enter on SWTR - Form G)   |  |  |  |  |

- 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.
- 2. 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). For continuous monitors count each 4-hour period as 1 measurement. Record the actual turbidity result at the specified interval of time. Do not average turbidity measurements. If DEP approved, 15-minute readings (i.e. 96 readings per day) may be submitted. Filtered turbidity data must be kept on file for DEP review.
- 4. Out of the # of turbidity measurements taken and recorded in the previous column, enter the number of turbidity measurements that were less than or equal to the Monthly (95%) NTU Limit for the filtration technology used.
- 5. If at any at time the filtered turbidity Max Day NTU Limit is exceeded, the DEP must be notified no later than the end of the next business day. For each exceedence, record the turbidity value(s) and date(s) on SWTR Form G

| I certify under penalties of law that I am the person<br>authorized to fill out this form and the Information contained<br>herein is true, accurate and complete to the best extent of | PWS Authorized Signeture:                        |  |
|--|--|--|
| my knowledge.  | Date: 6.8.2.0 Tittle: Primary Certified Operator |  |

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MessDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is

### Massachusetts Department of Environmental Protection - Drinking Water Program COMPLIANCE DETERMINATION FOR FILTERED SYSTEMS - Monthly Report

SWTR

|  |  | 1113003  |   | _] P   | WS Name:   |   | House  | tonic Wet  | er Worles  |  |  | PWS Town   |  | Great Barrin   | otoo   |
|--|--|--|---|--|--|---|--|--|--|--|--|--|--|--|--------|
|  | Treatment F  | Plant Name:  |   |  | Long Pont  | 1   |  | ]  | Reportin   | g Period:  | Month:   | May  | Yes  |  | 7      |
| (FIRE  |  | OFMICE   | CHIER   | Settle Fed   |  |   |  | THE PLAN   | and the same   |  | 7000 KASS  | Ursely.  |  | . CURU   | MOTES. |
| 1.   | Monthly 1<br>measurem  | urbidity (9)<br>ents taken   | 5%) NTU I<br>each moni  | Limit - The t  | urbidity leve<br>ation techn   | el of a syste   | m's filtered<br>, otherwise  | water mus  | st be less t   | han or equal<br>Tier 2)  | to the Mo  | ntly Turbidi   | y NTU Lin  | nit in at least  | 95%    |
|  | 186  |  | A   | 1  |  |   |  |  |  | VTR - Form I   | <del></del> -  |  |  | <del></del>  |        |
|  | 186  |  | В   | Total #<br>(SWTR   | of filtered v<br>? - Form F)   | vater turbid  | ily measure  | ementa les   | s than or e  | qual to the s  | pecified lin   | nits for the t   | litration ter  | chnology use   | ed.    |
|  | 100.00%  | = (B/A   | ) X 100   | The pe   | rcentage of  | turbidity m   | eesuremer  | its meeting  | the Month  | lly Turbidity (  | 95% NTU  | Limit.   |  |  |        |
| 2.   | Max De<br>SWTR   | y NTU Lim<br>TT Violation  | it - The tu<br>(Tier 2).  | rbidity level o  | of a system  | 's filtered w   | rater must r   | it no time e   | oceed the  | Max Day NT   | U Limit fo   | or the filtratio   | n technolo   | gy used, oth   | renvi  |
|  |  | R  | ecord the o   | date and turt  | oidity value   | for any me  | asurement  | s exceeding  | the Max  | Day NTU.   | ☑ Chec   | k box if "Nor  | 18"  |  |        |
| D  | ate  | Va   | iue   | Date   | Reported t   | o DEP   |  |  |  | )ate   | ٧  | alue   | Dete   | Reported t   | DE     |
| _  |  |  |   |  |  |   | 1  |  |  |  |  |  | -  |  |        |
| For a  | sach day th<br>ours then it  | e Max Day is a SWTR  | NTU limit I   | s exceeded,<br>) violation re  | the DEP requiring pub  | nust be not<br>lic notificat  | fied by the<br>ion within 2  | end of the<br>4 hours.   | next busin   | ess day. SW  | TR TT VA   | olation (Tier  | 2). If DEP   | is not consu   | ulted  |
|  | STICK PE   | REORMAN  | GE CRIT   | SRIA   | FEI MES  |   |  |  |  | SSUBSTITUTE  | TELEPONE   | VIOLENCE IN  | OC BOTH  |  | u co   |
|  | Point-of-E   | ntry Minim   | um Distné   | octant Resi  | dual Criter  | ia - Residu   | el Disinfect   | ant concen   | tration can  | not be <0.2  | ma/l for a   | none than 4  | NALES OF THE PARTY | 1  |        |
|  | SWIRTT   | Violation (Ti  | er 2).  |  |  |   |  |  |  |  |  |  |  |  |        |
|  | Day  | Cl <sub>2</sub> mg/L   | Day   | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L  | Day  |  |  | ribution Sys   |  | 100  |  |  |        |
|  | 1  | 1.52   | 6   | 1.76   | 11   | 1.86  | 18   | 1.72   | Day  | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L   | 1      |
|  | 2  | 1.50   | 7   | 1.03   | 12   | 1.72  | 17   | 1.72   | 21   | 1.22   | 26   | 1.35   | 31   | 1.26   |        |
|  | 3  | 1.49   | 8   | 1,60   | 13   | 1.66  | 18   | 1.79   | 22   | 1.49   | 27   | 1.50   |  | Measured   |        |
| - 1  |  |  |   |  |  |   |  |  |  |  |  |  |  | Free Cla   |        |
| - 1  | - 4  | 1.73   | 9   | 1.62   | 14   |   |  |  | 23   | 1.47   | 28   | 1.48   | 8  |  |        |
| Ĵ  | 5  | 1.86   | 9   | 1.62   | 14   | 1.67<br>1.69  | 19   | 1.84   | 24<br>25   | 1.55   | 29   | 1.45   |  | Total Cla  |        |
| if at a  | 5<br>any time the  | 1.86<br>residual fe  | 10<br>ils below 0   | 1.87   | 15<br>e water en   | 1.67<br>1.69  | 19<br>20   | 1.84<br>1.89   | 24<br>25   | 1.55   | 29<br>30   | 1.45   |  | Total Cl <sub>2</sub>  |        |
|  | 5<br>any time the<br>than by the   | 1.86<br>residual fal<br>end of the r   | 10<br>lis below 0<br>next busin   | 1.87<br>0.2 mg/L in these day. Th  | 15<br>e water en   | 1.67<br>1.69  | 19<br>20   | 1.84<br>1.89   | 24<br>25   | 1.55   | 29<br>30   | 1.45   |  | Total Cl <sub>2</sub>  | but n  |
| resto  | 5<br>any time the<br>than by the<br>red to at les  | 1.86<br>residual fal<br>end of the r<br>set 0.2 mg/L   | 10<br>lis below 0<br>next busine<br>within fou  | 1.87<br>0.2 mg/L in these day. Th  | 15<br>e water en   | 1.67<br>1.69  | 19<br>20   | 1.84<br>1.89   | 24<br>25<br>supplier o   | 1.55<br>1.42<br>If water must<br>the end of th   | 30<br>notify the<br>e next but   | 1.45<br>1.31<br>Departmen<br>siness day v  |  | Total Cl <sub>2</sub>  | but n  |
| resto  | 5<br>any time the<br>than by the<br>red to at les<br>esidual <   | 1.86<br>residual fal<br>end of the r   | 10<br>ils below 0<br>next busine<br>within four<br>of Low   | 1.87<br>0.2 mg/L in thess day. The   | 15<br>e water en   | 1.67<br>1.69<br>tering the d  | 19<br>20   | 1.84<br>1.89   | 24<br>25<br>supplier on<br>intraent by   | 1.55 1.42 If water must the end of the   | 30<br>notify the<br>e next but   | 1.45<br>1.31<br>Department<br>siness day v   | t as soon a  | Total Cl <sub>2</sub>  | tual v |
| resto<br>(e) R   | 5<br>any time the<br>than by the<br>red to at les<br>esidual <   | 1.86<br>residual fa<br>and of the r<br>set 0.2 mg/L  | 10<br>ils below 0<br>next busine<br>within four<br>of Low   | 1.87<br>0.2 mg/L in thess day. The   | 15<br>ne water en<br>e supplier c  | 1.67<br>1.69<br>tering the d  | 19<br>20   | 1.84<br>1.89   | 24<br>25<br>supplier on<br>intraent by   | 1.55<br>1.42<br>If water must<br>the end of th   | 30<br>notify the<br>e next but   | 1.45<br>1.31<br>Departmen<br>siness day v  | t as soon a  | Total Cl <sub>2</sub><br>ombined Cl <sub>2</sub><br>as possible,<br>not the resid  | tual v |
| resto<br>(e) R   | 5<br>any time the<br>than by the<br>red to at les<br>esidual <   | 1.86<br>residual fa<br>and of the r<br>set 0.2 mg/L  | 10<br>ils below 0<br>next busine<br>within four<br>of Low   | 1.87<br>0.2 mg/L in thess day. The   | 15<br>ne water en<br>e supplier c  | 1.67<br>1.69<br>tering the d  | 19<br>20   | 1.84<br>1.89   | 24<br>25<br>supplier on<br>intraent by   | 1.55 1.42 If water must the end of the   | 30<br>notify the<br>e next but   | 1.45<br>1.31<br>Department<br>siness day v   | t as soon a  | Total Cl <sub>2</sub><br>ombined Cl <sub>2</sub><br>as possible,<br>not the resid  | tual v |
| resto<br>(w) R   | 5<br>any time the<br>than by the<br>red to at les<br>esidual <   | 1.86<br>residual fa<br>and of the r<br>set 0.2 mg/L  | 10<br>ils below 0<br>next busine<br>within four<br>of Low   | 1.87<br>0.2 mg/L in thess day. The   | 15<br>ne water en<br>e supplier c  | 1.67<br>1.69<br>tering the d  | 19<br>20   | 1.84<br>1.89   | 24<br>25<br>supplier on<br>intraent by   | 1.55 1.42 If water must the end of the   | 30<br>notify the<br>e next but   | 1.45<br>1.31<br>Department<br>siness day v   | t as soon a  | Total Cl <sub>2</sub><br>ombined Cl <sub>2</sub><br>as possible,<br>not the resid  | tual v |
| (e) R<br>0.2 r   | 5<br>any time the<br>than by the<br>red to at les<br>esidual <<br>rig/L  | 1.86 residual fai end of the rest 0.2 mg/L Duration Leval  | 10<br>lis below 0<br>next busine,<br>within fou<br>a of Low<br>(hrs.)   | 1.87<br>0.2 mg/L in the<br>ess day. The<br>ir hours.   | 15<br>ne water en<br>e supplier c  | 1.67<br>1.69<br>tering the d<br>of water also   | 19<br>20<br>Istribution a<br>o must noti   | 1.84<br>1.89<br>system, the<br>fy the Depar  | 24<br>25<br>supplier o<br>artment by<br>Date(a) F<br>0.2   | 1.55 1.42 If water must the end of the end o | 30<br>notify the<br>e next but<br>Duration<br>Leva   | 1.45<br>1.31<br>Departmen<br>siness day v  | C C C t as soon a whether or   | Total Cl <sub>2</sub> combined Cl <sub>2</sub> as possible, not the resic  | DE     |
| (6) R<br>0.2 r   | 5 any time the than by the red to at les esidual < ng/L Distribution any two core  | 1.86 residual fal end of the r est 0.2 mg/L Duration Leval   | 10 lis below 0 next busins, within four lef Low (hrs.) Disinfectal onths, SV  | 1.87 0.2 mg/L in these day. The ir hours.  Date F  | 16 ne water en e supplier o  | 1.67 1.69 tering the d of water als   | 19 20 Istribution of must note   | 1.84<br>1.89<br>system, the<br>by the Department oncentration  | 24<br>25<br>supplier o<br>srtment by<br>Date(a) i<br>0.2   | 1.55 1.42 If water must the end of the   | 39<br>30<br>notify the<br>e next bu<br>Duratio<br>Leve   | 1.45<br>1.31<br>Department<br>siness day v   | Cat as soon whether or   | Total Cl <sub>2</sub> combined Cl <sub>2</sub> as possible, not the resid  | DE     |
| (6) R<br>0.2 I   | 8 any time the than by the red to at lease saidual < ng/L Distribution any two correspond services as a service service of the services of the | 1.86 residual fal end of the r est 0.2 mg/L Duration Leval   | 10 lis below 0 next busin, within fou a of Low (hrs.) Disinfectal onths. SV residual is   | 1.87 D.2 mg/L in thess day. The rhours.  Date F  Int Residual VTR TT Viol of detected, as ring month:  | 15 ne water en e supplier c taported to Criteria - F lation (Tier n HPC sam  | 1.67 1.69 tering the d of water als DEP Residual Dir 2). Chlorin  | 19 20 Istribution of the control of  | 1.84 1.89 system, the system the Department oncentration must be mand enaltyz  | 24 25 supplier of artment by Date(a) F 6.2  On (V) canneasured aid.  | 1.55 1.42 If water must the end of the end o | 28 30 notify the enext but Duration Leva   | 1.45 1.31 Departmensiness day vin of Low in (fire.) greater than cation as to  | Date  5% of sar  | Total Cl <sub>2</sub> combined Cl <sub>2</sub> as possible, not the resid  Reported to  inplies in a man eliatribution   | DE     |
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In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are received or no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP)

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

More than 1 Disinfectant / Sampling Point

1. Mas parometernow.

| 455<br>455   | 459   |
|--|---|
| ## (CE)  | 455 Att. Ott.   |
|  |   |
| 20.7<br>20.7<br>26.7<br>26.7<br>26.6<br>26.6<br>26.6<br>27.4<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0                                       | 20.7<br>20.7<br>26.7<br>26.5<br>26.6<br>24.6<br>24.6<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0  |
| 20.3<br>26.7<br>26.6<br>24.6<br>24.6<br>24.6<br>32.0<br>33.7<br>34.7<br>34.7<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>2                          | 20.3<br>26.5<br>26.6<br>24.6<br>24.6<br>22.0<br>32.0<br>32.0<br>32.0<br>34.7<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>31.3<br>36.9<br>36.9<br>36.9<br>36.6<br>40.2<br>40.2<br>26.6<br>40.2<br>26.6<br>40.2<br>26.6<br>40.2<br>26.6<br>40.2<br>26.6<br>40.2<br>26.6<br>26.6<br>26.6<br>26.6<br>26.6<br>26.6<br>26.6<br>2 |
| 26.7<br>24.6<br>24.6<br>32.2<br>32.2<br>32.7<br>34.7<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>2  | 26.7<br>24.6<br>24.6<br>24.6<br>32.0<br>32.0<br>32.0<br>31.7<br>27.4<br>27.4<br>27.4<br>31.3<br>38.9<br>38.9<br>38.9<br>40.5<br>40.5<br>40.5<br>40.5<br>40.5<br>40.5<br>40.5<br>40.5  |
| 24.6 24.6 24.6 32.0 32.0 34.7 34.7 34.7 27.4 32.8 38.9 38.4 40.8 38.5 38.5 38.5 40.2 40.2  | 24.6<br>24.6<br>32.2<br>32.0<br>32.0<br>34.7<br>24.3<br>34.1<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4<br>27.4  |
| 24.6<br>24.6<br>32.0<br>32.0<br>34.7<br>34.7<br>24.3<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32.0<br>32   | 24,6<br>22,6<br>32,2<br>32,0<br>31,7<br>34,7<br>27,4<br>27,4<br>27,4<br>27,4<br>27,4<br>27,4<br>27,4<br>2   |
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| 32.0<br>34.7<br>34.7<br>24.3<br>32.8<br>32.8<br>32.8<br>32.1<br>43.1<br>43.1<br>43.1<br>43.1<br>43.1<br>44.8<br>44.8<br>44.8<br>44.8<br>44.8<br>44.8<br>44.8<br>44 | 32.0<br>32.0<br>34.7<br>27.4<br>27.4<br>27.4<br>27.4<br>31.3<br>38.3<br>38.4<br>40.5<br>40.5<br>40.5<br>40.2<br>38.5<br>40.2<br>40.2<br>40.2<br>58.5<br>68.1<br>68.1  |
| 32.0<br>34.7<br>24.4<br>24.3<br>22.8<br>31.1<br>31.1<br>31.1<br>31.1<br>31.1<br>31.3<br>31.3<br>31   | 34.7<br>34.7<br>24.4<br>24.3<br>32.8<br>38.4<br>38.5<br>38.4<br>40.5<br>40.5<br>40.5<br>40.2<br>40.2<br>40.2<br>40.2<br>40.2<br>40.2<br>40.2<br>40.2  |
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| 27.4<br>27.4<br>22.6<br>32.6<br>35.9<br>35.9<br>35.4<br>40.5<br>40.5<br>40.2<br>51.6<br>51.6   | 27.4<br>27.4<br>27.4<br>32.6<br>38.9<br>38.9<br>38.4<br>40.5<br>40.5<br>40.5<br>40.2<br>40.2<br>40.2<br>40.2<br>40.2  |
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| 32.6<br>37.4<br>38.1<br>38.3<br>38.3<br>42.6<br>43.1<br>38.4<br>40.5<br>38.6<br>38.6<br>38.6<br>41.8<br>55.9<br>51.6   | 32.8<br>27.4<br>27.4<br>28.1<br>39.5<br>39.5<br>39.5<br>40.5<br>40.2<br>69.1<br>69.1<br>69.1  |
| 27.4<br>81.1<br>35.9<br>34.3<br>42.6<br>43.1<br>43.1<br>40.5<br>38.5<br>38.5<br>38.5<br>41.8<br>55.9<br>51.6   | 27.4<br>81.1<br>38.9<br>81.3<br>81.3<br>42.6<br>43.1<br>43.1<br>40.5<br>40.2<br>40.2<br>89.1<br>69.1  |
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| 35.9<br>34.3<br>42.6<br>43.1<br>40.5<br>36.4<br>40.5<br>35.9<br>41.8<br>55.9<br>51.6   | 35.9<br>31.3<br>42.6<br>42.6<br>42.6<br>59.3<br>38.6<br>38.6<br>40.2<br>40.2<br>40.2<br>69.1<br>69.1  |
| \$1.3<br>42.6<br>43.1<br>36.4<br>40.5<br>38.5<br>41.8<br>55.9<br>51.6  | \$1.3<br>42.6<br>42.6<br>43.1<br>28.4<br>40.5<br>38.6<br>41.8<br>40.2<br>40.2<br>69.1   |
| 42.6<br>43.1<br>39.4<br>40.5<br>39.3<br>39.5<br>38.6<br>41.8<br>41.8<br>55.9<br>57.6   | 42.6<br>43.1<br>43.1<br>40.5<br>39.3<br>38.6<br>41.8<br>40.2<br>69.1<br>69.1  |
| 45.1<br>36.4<br>40.5<br>39.5<br>38.6<br>41.8<br>25.9<br>40.2<br>60.2   | 43.1<br>40.5<br>40.5<br>39.3<br>38.5<br>41.8<br>40.2<br>60.1<br>61.2  |
| 36.4<br>40.5<br>39.3<br>38.6<br>41.8<br>40.2<br>40.2<br>51.6   | 36.4<br>40.5<br>39.3<br>38.5<br>41.8<br>40.2<br>40.2<br>69.1<br>69.1  |
| 40.5<br>39.3<br>38.6<br>41.8<br>36.9<br>40.2<br>89.1   | 40.5<br>59.3<br>38.6<br>44.8<br>40.2<br>69.1<br>69.1  |
| 39.3<br>38.6<br>41.8<br>35.9<br>40.2<br>89.1   | 39.3<br>38.6<br>41.8<br>38.9<br>40.2<br>40.2<br>60.1  |
| 38.6<br>41.8<br>35.9<br>40.2<br>89.1<br>51.6   | 38.5<br>41.8<br>58.9<br>40.2<br>80.1<br>80.1  |
| 41.8<br>35.9<br>40.2<br>60.1<br>51.6   | 41.8<br>35.9<br>40.2<br>69.1<br>51.6  |
| 35.9<br>40.2<br>59.1<br>51.6   | 35.9<br>40.2<br>51.1<br>51.6<br>47.2  |
| 40.2   | 40.2<br>89.1<br>61.6<br>67.2  |
| 51.6   | 51.6<br>51.6<br>47.2  |
| 9.59   | 51.6  |
|  | 47.2  |

To determine SUM (CT calc/CT 99.9), add (CT calc/CT 99.9) values from the first disinfectant sequence to the last from SWTR - Form I.
 The inactivation ratio (CT calc / CT 99.9) is determined before or at the first customer during peak hourly flow and if the SUM (CT calc / CT 99.9)
 CT 99.9)
 The 98.9% Glardie landing inactivation requirement has not been achieved. A "Yes" response above indicates a SWTR Treatment Technique violation.

PW8 Authorized Signature: Phone #: I certify under penatities of law that I am the person authorized to fill out this form and the information contained herein is true, eccurate and complete to the best extent of my

Date: 6-8-20 Fax: 413-528-3024

Primary Certified Operator

Title:

housatonicwater@gmail.com

Emall:

In accordance with 310 CMR 22.16(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitioning period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

M I.

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

| Page    | WS ID#: | 1113003                             | PWS Name:  |                                     | Housetonic Water Works |                  | PWS Town    | 00         | 0 0608345           |                        |
|--|---------|-------------------------------------|--|-------------------------------------|------------------------|------------------|-------------|------------|---------------------|------------------------|
| Distribution   Light   Light | Ę       | atment Facility Name: [             | 3  | ng Pond                             | Reporting Pariod:      | Month:           | May         | Year: 2020 |                     |                        |
| Peak Houry Flow   Circuit (spring)   Peak Houry Flow   Circuit (circuit)   Peak Houry Flow   Circuit (circuit)   Circuit (ci |         |                                     | Segment 1 - post dear                              | well (up in 2004; long pan)         | Sequence of Disinfact  | ant Application: | 1st         | , g        | £                   |                        |
| Peak Houry Flow  | DARY    | MENDETRING: ALL KINES               | inference takes during                             | poak hourte flow.                   |                        |                  |             | 1912/1912  | STATE OF THE PARTY. | The Hall County of the |
| 162   160   139   224   744   813   644   4.0     162   2.13   155   235   7.46   815   615   615     162   2.13   155   235   7.46   815   615     162   1.21   1.34   143   7.40   10.5   6.5     162   1.21   1.34   143   7.40   10.5   6.5     162   1.22   1.21   1.34   143   7.40   10.5   6.5     163   1.22   1.35   1.40   1.40   1.41   2.40   1.40   1.40     163   1.25   1.44   1.35   1.44   1.35   1.44   1.45   1. | Š       | Peak Hourly Flow <sup>2</sup> (gpm) | Distrifectant Concentration <sup>3</sup> C (moll.) | Disinfectant Contact Time* T (min.) | CT Calc                | PH.              | Water Temp® | CT.        | Inactivation Ratio  | Inactivation Ratio     |
| 150   2.13   153   237   7.46   8.5   8.5   8.5   8.5     152   2.07   124   276   7.46   8.7   8.1     152   1.27   1.24   276   7.46   8.7   8.1     152   1.27   1.24   1.45   7.46   8.7   8.1     152   1.27   1.24   1.45   7.47   10.5   8.5     152   1.25   1.45   1.45   1.46   1.05   8.4     152   1.26   1.45   1.47   1.48   7.7   1.05   8.5     152   1.26   1.47   1.48   7.7   1.05   8.5     152   1.26   1.47   1.48   7.7   1.05   8.5     152   1.26   1.37   1.37   1.03   4.4     152   1.26   1.37   1.37   1.03   4.4     152   1.26   1.37   1.38   7.1   1.05   4.5     152   2.04   1.38   2.10   1.34   2.35   1.05     152   2.56   1.44   2.35   1.05   1.05   2.4     152   2.56   1.44   2.35   1.05   1.05   2.4     152   2.05   1.44   2.35   1.05   1.05   2.4     152   2.05   1.44   2.35   1.05   1.05   2.4     153   2.05   1.44   2.35   1.05   1.05   2.5     154   2.05   1.44   2.35   1.05   1.05   2.5     155   2.05   1.44   2.35   1.05   1.05   2.5     155   2.05   1.44   2.35   1.05   2.3     155   2.05   1.44   2.35   1.05   2.3     155   2.05   1.45   1.05   2.3   1.05     155   2.05   1.45   1.05   2.3   1.05     155   2.05   1.45   1.05   2.3   1.05     155   2.05   1.45   1.05   2.3   1.05     155   2.05   1.45   1.05   2.3   1.05     155   2.05   1.45   2.35   1.05   2.3     155   2.05   1.45   2.35   2.3   1.05     155   2.05   1.45   2.35   2.3   1.05     155   2.05   1.45   2.35   2.3   1.05     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.35   2.3   2.3     155   2.05   1.45   2.3   2.3   2.3     155   2.05   2.05   2.05   2.05   2.05   2.05     155   2.05   2.05   2.05   2.05   2.05   2.05     155   2.05   2.05   2.05   2.05   2.05   2.05     155   2.05   2.05   2.05   2.05   2.05     155   2.05   2.05   2.05   2.05   2.05     155   2.05   2.05   2.05   2.05   2.05   2.05  | -       | 162                                 | 1.60   | 138                                 | 22                     | 7.47             | 83          | 200        | 4.0                 | D men Econ             |
| 182   2.22   183   234   234   184   234   184   234   184   234   184   234   184   234   184   234   184   234   184   234   184   234   184   234   184   234 | 2       | 252                                 | 2.13   | 138                                 | 287                    | 7.49             | 8.8         | 2          | K                   | n III Dage             |
| 152         207         134         276         749         67         51         65           152         1,21         1,21         143         146         7.42         10.5         45         5.4           152         1,21         148         170         7.44         10.6         46         5.4           152         1,26         146         147         148         170         10.5         46         5.8           152         1,36         147         360         7.1         10.5         46         7.3           152         1,26         1.6         147         360         7.1         10.5         46         5.6           152         1.6         1.6         1.6         1.7         10.5         47         5.6           152         1.6         1.6         1.6         1.6         1.6         7.1         1.6         7.1           152         1.8         1.7         1.6         1.0         4.6         7.2         4.6         5.6           162         1.8         1.7         1.6         1.0         4.6         5.6         4.6         5.6           162         1   | 60      | 162                                 | 2.22   | 132                                 | 283                    | 7.48             | 8.8         | 38         | 8.2                 | see Form H             |
| 152         1,21         134         143         743         743         103         45         3,4           152         1,15         1,46         149         170         7,43         105         45         3,4           152         1,15         1,46         149         140         342         7,43         105         49         3,4           152         2,38         1,41         340         7,12         107         40         7,3           152         2,56         1,41         340         7,12         10,7         40         7,3           152         2,56         1,41         340         7,16         10,3         42         4,6         7,8           152         2,46         1,57         1,00         4,7         7,6         10,3         4,6         6,8           152         2,46         1,59         2,00         7,1         10,3         4,6         6,8           152         2,46         1,59         2,00         7,1         10,3         4,6         6,8           152         2,50         1,50         2,1         1,0         1,0         1,4         1,4         1,4 <td< td=""><td></td><td>152</td><td>207</td><td>134</td><td>2778</td><td>7.40</td><td>6.7</td><td>20</td><td>6.4</td><td>Han Edward</td></td<>   |         | 152                                 | 207  | 134                                 | 2778                   | 7.40             | 6.7         | 20         | 6.4                 | Han Edward             |
| 152         1,62         143         146         146         146         146         146         146         146         147         106         44         3,4           152         1,26         1,26         1,46         1,20         382         7,7         107         46         7,8           152         1,26         1,47         1,69         7,7         10,7         40         7,8           152         1,26         1,47         1,69         7,1         10,7         40         7,8           152         1,56         1,47         1,69         1,7         1,6         1,6         1,6           152         1,60         1,67         1,7         1,0         1,7         1,6         1,6         1,6           152         1,64         1,39         3,6         7,1         1,0         1,7         1,6  | ٥       | 152                                 | 1.21   | 134                                 | 163                    | 7.43             | 10.3        | 88         | 3.6                 | Sea Form H             |
| 152   1155   1449   170   744   105   446   338   150   140   140   170   1707   105   140   170   1707   105   140   1708   1707   105   140   1708   170 | ۵,      | 25                                  | 1.02   | 143                                 | 146                    | 7.42             | 106         | 48         | 3.4                 | See From H             |
| 152   1286   145   | 1       | 152                                 | 1.15   | 148                                 | 170                    | 7.44             | 108         | 94         | 3.9                 | see Form H             |
| 152         318         120         382         712         107         40         778           152         2.56         147         380         7.11         10.4         47         7.8           152         2.56         147         380         7.16         10.3         47         7.8           152         1.62         1.64         137         384         7.16         10.3         42         4.6           152         2.18         1.65         2.18         1.65         4.6         7.4         4.6         7.4           152         2.18         1.65         3.84         7.16         10.3         4.2         4.6         7.4         4.6         7.4         4.6         7.4         4.6         7.4         4.6         7.4         4.6         7.4         4.6         7.4         4.6         7.4         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.6         7.6         4.  |         | 152                                 | 128  | 145                                 | 162                    | 202              | 105         | 35         | 4.6                 | Son Form               |
| 152   2.56   | 5       | 152                                 | 3 18   | 120                                 | 362                    | 7.12             | 10.7        | 49         | 7.8                 | sae Form H             |
| 152   2.56   141   390   7.16   104   47   7.8   115 | 9       | QI.                                 | 136  | 147                                 | 188                    | 11.7             | 10.7        | 40         | 80                  | Less Form A            |
| 152         187         181         301         7 15         103         44         6,9           152         2.16         187         284         7 12         103         42         4,8           152         2.16         189         285         7 11         105         43         6.0           152         2.04         189         275         7 12         106         42         6.0           152         2.04         186         275         7 12         106         42         6.0           152         2.04         186         275         7 12         106         42         6.0           152         2.04         186         275         7 12         106         42         6.0           152         2.04         186         275         170         126         43         6.0           152         2.50         173         174         7.0         126         39         8.6           152         2.88         161         2.07         126         2.0         13.4         7.0           152         2.84         162         2.04         12.9         30         8.7   | =       | 152                                 | 2.58   | 141                                 | 360                    | 7.16             | 104         | 47         | 7.8                 | too Form H             |
| 152         1,46         1,97         201         7,12         10.3         42         4,6           152         1,64         1,99         284         7,19         10.3         4,6         7,4           152         1,84         1,99         284         7,10         10.5         4,3         6,0           152         2,61         1,95         3,54         7,10         11.5         4,3         6,0           152         2,04         1,95         3,54         7,10         11.5         4,3         6,2           152         2,04         1,85         2,54         7,0         12.6         3,9         8,2           152         2,04         1,84         3,73         7,04         12.6         3,9         10,2           152         2,04         1,81         4,46         7,04         12.6         3,9         14,1           152         2,04         1,81         3,9         1,44         2,97         14,1         3,1         14,1           152         1,84         2,9         1,44         2,9         1,44         3,9         1,44         3,9         1,44         3,9         1,44         3,9         <   | 7       | 162                                 | 187  | 181                                 | 361                    | 7.16             | 103         | 44         | 6.9                 | ann Form H             |
| 152         2.19         155         336         7.16         10.3         4.5         7.4           152         1.64         139         354         7.1         10.6         4.3         5.0           152         2.61         176         354         7.10         10.6         4.2         5.0           152         2.64         136         373         7.0         12.0         39         7.0           152         2.64         136         373         7.04         12.0         39         7.0           152         2.64         1.73         161         373         4.7         7.0         4.2         6.6           152         2.64         1.73         7.04         12.0         39         7.0         10.2         10.2           152         2.65         1.61         3.0         1.61         3.7         11.3         <   | 2       | 162                                 | 1.48   | 137                                 | 201                    | 7.12             | 10.3        | 42         | 4.8                 | Sae Form 14            |
| 152         184         139         286         711         105         43         6.0           152         261         136         354         7.12         11.6         47         8.0           152         204         136         354         7.0         12.0         47         8.0           152         2.04         136         373         7.04         12.0         39         8.6           152         2.04         134         373         7.04         12.0         39         8.6           152         2.04         144         37         7.04         12.0         39         8.6           152         2.05         144         2.02         7.04         13.2         34         10.2           152         1.81         4.0         1.6         2.0         1.3         37         10.3           1.52         1.60         1.6         2.0         1.4         2.0         1.3         37         11.3           1.52         1.84         2.7         2.0         1.3         30         8.7         1.6           1.52         1.84         2.0         1.4         2.0         1.4   | 9       | 8                                   | 2.18   | 165                                 | 338                    | 7.18             | 103         | 48         | 77                  | and one                |
| 152         175         140         284         7.12         10.6         42         5.9           152         2.61         136         354         7.10         11.5         43         5.9           152         2.04         136         373         7.04         12.6         39         7.0           152         2.04         154         373         7.04         12.6         39         8.6           152         2.56         144         373         471         7.04         12.9         40         10.2           152         2.58         1.81         44         287         6.97         13.4         37         41.3           152         2.06         1.44         287         6.95         14.6         37         6.6           152         1.62         1.63         1.44         287         6.95         14.6         30         8.7           152         1.63         1.64         2.95         1.46         2.95         10.6         9.7           152         2.10         1.44         2.95         1.65         2.6         10.6         2.6         10.6         2.6         10.6         2.6   | 2       | 152                                 | 1.84   | 139                                 | 288                    | 7.11             | 10.5        | 43         | 6.0                 | See Forn H             |
| 152   2.61   155   354   7.10   11.5   4.3   6.2     152   2.64   155   1.75   7.04   12.0   345   7.0     152   2.56   144   37.3   7.04   12.0   35   9.6     152   2.56   144   37.3   7.04   12.0   35   10.2     152   2.68   161   4.44   287   6.95   14.1   31   8.6     152   1.81   147   287   6.95   14.1   31   8.6     152   2.10   140   283   6.63   14.1   28   10.6     152   2.10   140   283   6.63   16.1   28   10.6     152   2.20   150   277   6.90   17.3   2.5   13.6     152   2.22   150   346   6.89   17.7   2.5   13.6     152   152   150   244   6.89   17.7   2.5   13.6     152   152   150   244   6.89   17.7   2.5   10.6     152   152   150   244   6.89   17.7   2.5   10.6     152   152   150   244   6.89   17.7   2.5   10.6     153   154   155   155   155   13.7     155   155   155   155   155   155   155     155   155   155   155   155   155   155     155   155   155   155   155   155   155     155   155   155   155   155   155   155     155   155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155     155   155   155   155   155   155   155     155   155   155   155   155   155   155   155     155   155   155   155   155   155   155   155     155   155   155   155   155   155   155   155   155   155     155   15 |         | 25                                  | 175  | 140                                 | 244                    | 7.12             | 108         | 42         | 6.9                 | Stor Form              |
| 152         2.504         155         275         7.04         12.0         35         7.0           152         2.59         1.44         37.3         7.04         12.9         39         7.0           152         2.59         1.61         40         7.04         12.9         40         10.2           152         2.06         1.61         41         2.87         6.97         14.1         37         17.8           152         1.61         1.67         2.06         1.44         2.87         6.95         14.6         37         14.3           152         2.06         1.44         2.87         6.95         14.6         37         8.6           152         2.06         1.44         2.87         6.95         14.6         37         8.7           152         2.10         1.60         2.83         6.93         14.6         2.9         10.6           152         2.16         1.60         2.83         6.93         16.6         2.6         10.6           152         2.16         1.60         2.44         6.89         17.3         2.6         10.6           152         1.50  | -       | Z .                                 | 261  | 136                                 | 354                    | 7.10             | 11.5        | 43         | 8.2                 | Soa Form H             |
| 152   3.25   144   373   7.04   12.6   359   9.6   162   175   154   154   1764   12.6   359   9.6   162   175   154   154   154   155   154   155   154   155   | 2       | 28                                  | 200  | 135                                 | 27.5                   | 707              | 120         | 39         | 7.0                 | Son Form 1             |
| 152   173   154   444   7.04   12.9   440   10.2   15.2   1.2   1.04   1.0.2 | 2 8     | 200                                 | 889  | 144                                 | 373                    | 7.04             | 12.6        | 39         | 9.6                 | Ree Form H             |
| 152         2.68         151         268         7.01         13.2         3.4         7.8           152         2.68         1.61         266         7.04         13.4         37         14.3           152         1.81         1.47         287         6.95         1.41         31         8.5           152         1.89         1.49         289         1.46         37         8.7           152         2.10         140         289         6.63         14.6         2.6         8.7           152         2.10         140         289         6.63         16.1         2.6         8.7           152         2.10         140         289         6.63         16.1         2.6         10.6           152         2.16         160         277         6.60         17.3         2.6         10.6           152         2.22         150         2.46         6.89         17.9         2.5         10.6           152         152         160         2.46         6.89         17.9         2.5         10.6           152         152         160         2.46         6.89         17.9         2.5  | 3 6     | 255                                 | 200  | 80                                  | 411                    | 78               | 129         | 40         | 10.2                | Sao Form H             |
| 152         C 88         161         481         7 04         13.4         37         41.3           152         1.61         147         247         6.97         141         31         6.6           152         2.06         144         248         6.95         14.8         37         8.6           152         2.10         149         243         6.85         14.8         30         8.7           152         2.10         140         243         6.83         16.1         26         10.6           152         2.16         160         246         6.90         17.3         26         13.6           152         2.22         150         246         6.89         17.9         26         13.6           152         152         150         244         6.89         17.9         25         10.6   | 8       | 25                                  | 2,13   | 151                                 | 262                    | 7.01             | 13.2        | 25         | 7.8                 | see Forn H             |
| 152   2.05   144   287   6.97   141   31   8.6   145   145   210   8.6   146   211   8.6   145   210   149   213   6.95   148   210   21 | 1 2     | 1 2 2                               | 200  | 101                                 | 416                    | 8                | 13.4        | 37         | 11.3                | See Form H             |
| 152   190   154   289   695   146   21   66   147   152   190   149   281   148   210   140   281   148   281    | 200     |                                     | 1.81   | 14/                                 | 282                    | 6.97             | 14.1        | 31         | 8.5                 | See Form H             |
| 152   163   149   152   238   6.85   14.9   30   8.7     152   2.10   140   237   6.93   18.1   28   10.6     152   2.16   160   346   6.89   17.9   25   13.6     152   152   150   244   6.89   17.9   25   10.6   | 5 4     | 200                                 | 887  | 2                                   | 787                    | 8.89             | 14.6        | 31         | 8.6                 | H mod egg              |
| 152   2.10   140   283   15,6   28   8,7   15,6   15,0   28   15,6   28   10,6   28   28   28   28   28   28   28   2  | 2 2     | 76                                  | 88   | 8                                   | 682                    | 6,95             | 148         | 33         | 8.7                 | See Form M             |
| 152   1.84   150   240   165   256   16,6   15,6   15,2   15,7   15,0   15,7   15,0   15,7   15,0   15,7  | 3 5     | 80,                                 | 63   | 149                                 | 272                    | 693              | 5.6         | 38         | 8.7                 | H was Form H           |
| 152   2.16   150   217   6.50   16.6   25   10.6   15.2   15.2   15.0   15.0   15.2   15.0  | 7       |                                     | 2.10   | 140                                 | 293                    | 6.93             | 18.1        | 88         | 10.6                | See Form H             |
| 152 2.22 159 346 6.89 17.7 26 13.6<br>152 1.52 160 244 6.89 17.9 25 16.6   | 8 8     | 701                                 | 28.  | 020                                 | 111                    | 03.5             | 166         | 98         | 10.6                | End Form H             |
| 152 2.22 159 3.46 8.89 17.7 2.6 13.7<br>152 150 2.44 6.89 17.9 25 16.6   | 87      | 76                                  | 2.18   | 160                                 | 348                    | 6.90             | 17.3        | 92         | 13.5                | see Form H             |
| 152 152 160 244 6.89 17,9 23 16,6  | 8       | 1                                   | 7.22   | 29                                  | 346                    | 689              | 17.7        | 25         | 13.7                | cas Form M             |
|  | 5       | 182                                 | 1 5%   | 160                                 | 244                    | 6.89             | 17.9        | 23         | 10.6                | sea Form H             |

1.Ube a separab form for each death-cotavbampling point. Einz distributions position, e.g. "constraint" or "CID\_15". If more than one distribution, sampling point, you must also complete SWTR from H and calculate the cummissible brackharism and control of the commission of the absolute posit flow at any brackharism.

2. Prest hourly flow means the hydrest parts of the water before or at the flow cannot be measured each day during peat hourly flow.

3. The trackall distribution occurrence for each of the water before or at the flow cannot be made to measured each day during peat hourly flow. The trackall distribution occurrence for each of details from T used in calculating CT, is the first it takes the water found from the point of distribution spokension and the point at which the resistant

is mesotrated.

If the september of the districted water must be mesured at least ones per day at each orlowine residual distriction concentration sampling point during peak hourly flow.

If the inseptember of the distriction water must be mesured at least ones per day at each residual distriction concentration sampling point during peak hourly flow.

If the inseptember of the distriction and a section of the distriction of the

I certify under paralities of law that I am the person authorized to fill out this form and the information contained havin is true, accurate and complate to the best addent of my browledge.

Date: 6 -8 -20 413-528-3024 PWS Authorized Signature:

Title: Primary Certified Operator

in accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days effer the end of the month in which the results are

## Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

| -        | LPMS ANTORINATION                      | Harris Market                        |   |                                       | Name of the last | STORES SAN WEST              | Management of the last of the |  | THE RESIDENCE OF THE PARTY OF T |
|----------|--|--------------------------------------|---|---------------------------------------|------------------|------------------------------|---|--|--|
| PWS ID#: | 1113008                                | PWS Name:                            |   | Housatoric Water Works                |                  | PW8 Town:                    | Great   | Great Barrangton                           |  |
| Ę        | Treatment Facility Name:               |                                      | Long Poud                                       | Reporting Period:                     | Month:           | May                          | Year: 2020  |  |  |
|          | Disinfectant*:                         | Sogment 2 - sto                      | 2 storage tank efficent (POE)                   | Sequence of Disinfectant Application: | nt Application:  | O 1st G 2nc                  | 34 0 4  |  |  |
| L DARLY  | RESCHING: All resestands who           | Everante felbres durit               | i postk hourly flow.                            | <b>医一种医疗医疗</b>                        |                  |                              |   |  |  |
| Day      | Peak Hourly Flow <sup>2</sup><br>(gpm) | Disinfectant Concentration3 C (mol.) | Disinfectant Contact Time <sup>4</sup> T (min.) | CT Calc                               | pHs              | Water Temp <sup>8</sup> (°C) | CT,   | Inactivation Ratio®<br>(CT calc / CT 99.9) | Inactivation Ratio   |
| -        | 3                                      | 63                                   | 1044  | 1700                                  | 8.50             | 7.9                          | 82  | 800  |  |
| CN .     | 119                                    | - 63                                 | 913   | 1248                                  | 8.80             | 8.2                          | 980   | 48.7                                       | See Form H   |
| 8        | 124                                    | 1.67                                 | 764   | 1200                                  | 8.54             | 8.4                          | 88  | 19   | See Form H   |
|          | 8                                      | - 186                                | 878   | 1710                                  | 8.55             | 0.6                          | 88  | 2.5  | and From H   |
| -        | 50                                     | 1.92                                 | 689   | 1713                                  | 8,54             | 9.3                          | 78  | 21.9                                       | Son Form H   |
| -        | 200                                    | 1.00                                 | 289   | 1807                                  | 854              | 9.6                          | 76  | 21.3                                       | See Form H   |
| -        | 800                                    | 37.6                                 | 884   | 1558                                  | 8.56             | 9.7                          | 75  | 20.7                                       | see Form H   |
|          | TAIL T                                 | 20.00                                | 972   | 1656                                  | 7.60             | 9.6                          | 99  | 27.8                                       | 6-86 Form H  |
| ş        | 9693                                   | 707                                  | 844   | 1367                                  | 7.80             | 9.6                          | 58  | 24.2                                       | See Form H   |
| -        | 140                                    | 1.00                                 | 908   | 1607                                  | 7.70             | 9.6                          | 56  | 28.7                                       | Sea Form H   |
| 42       | 37                                     | 8 5                                  | 820   | 1628                                  | 7.70             | 9.5                          | 56  | 27.1                                       | see form H   |
| -        | FE                                     | 1.12                                 | 999   | 1062                                  | 7,80             | 9.6                          | 53  | 80.6                                       | see Form H   |
| 4        | (5)                                    | 1.00                                 | 810   | 1012                                  | 7.60             | 9.8                          | 52  | 19.4                                       | see Form H   |
| 2        | 28                                     | 80                                   | 020   | 1203                                  | 7.50             | 101                          | 46  | 26.4                                       | 6cg Form H   |
| 18       | 13                                     | 62                                   | 2700  | 2976                                  | 7.70             | 10.0                         | SS  | 21.4                                       | see Form H   |
| =        | 118                                    | 181                                  | S S S S S S S S S S S S S S S S S S S           | 4000                                  | 087              | /01                          | 48  | 262  | see Form H   |
| 4        | 166                                    | 92                                   | 620   | 1440                                  | 02.7             | 10.9                         | 48  | 27.8                                       | see Form H   |
| 9        | 118                                    | 1.84                                 | ROS   | 4785                                  | 8                | 80                           | 48  | 24.3                                       | see Forn H   |
| 20       | 118                                    | 8:                                   | 704   | 8771                                  | 1.40             | 1                            | 2   | 32.9                                       | see Form Hi  |
| 21       | 120                                    | 1.39                                 | 787   | 1098                                  | 140              | 100                          | \$ 95   | 27.0                                       | See Form H   |
| 22       | 128                                    | 169                                  | 719   | 4447                                  | 140              | 43.4                         | 05  | 20.0                                       | 866 Form H   |
| ន        | 133                                    | 191                                  | 718   | 1124                                  | 740              | 12.8                         | 8 8   | 2000                                       | See Form F1  |
| 7        | 148                                    | 163                                  | 629   | 1022                                  | 25,              | 8 18                         | 8 8   | 90.00                                      | See Form H   |
| 8        | 123                                    | 1.51                                 | 735   | 1110                                  | 737              | 143                          | 3   | 19.4                                       | See Form H   |
| 8        | \$3                                    | 1.47                                 | 573   | 840                                   | 7.36             | 15.3                         | 8   | 28.9                                       | C IIIO DAS   |
| 7 8      | 25                                     | .68                                  | 563   | 930                                   | 7.35             | 15.9                         | 31  | 29.8                                       | See Form   |
| 8        | 000                                    | 99                                   | 9\$6  | 1472                                  | 734              | 16.2                         | 8   | 48.5                                       | Ane Form H   |
| 3 8      | 130                                    | 3.5                                  | 726   | 1087                                  | 7,34             | 17.0                         | 53  | 38.1                                       | See Form H   |
| 3 2      | 13/                                    | 1,30                                 | 67.7  | 922                                   | 732              | 17.3                         | 88  | 33.6                                       | sea Form H   |
| 5        | 140                                    | 3.5                                  | 648   | 944                                   | 7.83             | 17.6                         | 24  | 0.74                                       |  |

Notes:

Uses a separate form for each distributant/samping point. Exter distributant and sequence position, e.g. "cooner!" or "CD\_GG". If more than one distributant eamping point, you must see complete SWTR from H and celculate the cummutative trackellon ratio SUAR

(CT catedyT 99.8) to determine complaine.
2. Performance have means the highest pumpage hour during the day, not the absolute peak flow at eny historia.
3. Performance have means the highest pumpage hour during the day, not the absolute peak flow at eny historia.
4. The debriedable concentration (CT) of the water before or at the first cursoner must be measured each calculating.
4. The debriedable concentration (CT) of the water before or at the first cursoner must be measured at least once per day at each choine residual dishification concentration concentration amplity peak hourly flow.
5. The the system uses a choine and a least once per day at each choine residual dishificant concentration amplity peak hourly flow.
6. The therefore or at the first customes during peak hourly flow and if the ratio is <1.0, the 89.8% Glands in magnitude of the dishification of the dishification of the first customes during peak hourly flow and if the ratio is <1.0, the 89.8% Glands in magnitude magnitude of the dishification of the dishification of the statement Teaching peak hourly flow and if the ratio is <1.0, the 89.8% Glands in magnitude magnitude of the dishification of the d

locatify under panalists of law that I am the person suffering between suffering the flown and the person suffering the flown and the month in which the results are

Email: housatonicwater@gmail.com Title: Primary Certified Operator

# Massachusetts Department of Environm

| 7  | CHL   | CHLORINE/CHLORAMINES - MONTHLY REPORT   | LY REPORT  | Toecuon - Drinking water Program<br>3T  | ng water P   | rogram   |
|--|---|---|--|---|--|--|
| I. PWS I   | MONTH: M  | 1803 YEAR:  | 2020<br>Housatonic Water Works   | City/Town:  | Great Barrington   | Class: (2)OM (_)TNC (_)MC  |
| II. ANAL<br>Type I   | ANALYTICAL INFORM Type Messured:  Motes:  | II. ANALYTICAL INFORMATION: Refer to your MassDEP Coliform Sampling Plan and/or DBPR monitoring plan to help complete this section.  Type Measured: ☑ Free Chlorine ☐Total Chlorine ☐cmbined Chlorine Analytical Method: ❷ 4500-Ci: ☐ □ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐   | tan and/or DBPR monitoring<br>rine Analytical Method:  | coring plan to help co  | mplete this section  | m.<br>Ö 🗅 G 🖰 ' ASTWAD1263-  |
|  | DEP AP  | DEP APPROVED SAMPLE SITE INFORMATION  | CHLORINE   | COLLECTION AND ANALYSIS <sup>2</sup> :  | D ANALYSIS <sup>3</sup> :                                  |  |
| Sampie<br>Type V   | DEP Location<br>Code #  | DEP Approved SAMPLE LOCATION <sup>1</sup>   | RESULT <sup>2</sup><br>(mg/L)  | DATE  | TIME   | COLLECTED AND ANALYZED BY:   |
| RS   | EP1   | Point of Entry  | 1.19   | 5/13/2020   | 9:20   | Erick Bartlett   |
| RS   | 001   | Pleasant and Main   | 0.24   | 5/13/2020   | 8:59   | Frick Bartist  |
| RS   | 200   | Brookeide School  | 0.21   | 5/13/2020   |  | Erick Bartlett   |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
|  |   |   |  |   |  |  |
| DEP Sample Switch Switch Switch Switcher Sample Type Au Distribe | in Type, Location Code<br>inns: HPC must be coll<br>ind Analysis: Chlorine r<br>in: RS-Routine Dishibu<br>ISITION samples taken | **DEP Sample Type, Location Codes, and DEP Approved Sample Site Location must correspond to the same information on your DEP Total Coliform Sampling Plan.  **SWTR systems: HPC must be collected at distribution sites with zero chiorine residual and results reported on the DEP Bacteriological Monthly Report form and on the appropriate SWTR Form.  **SCalection and Analysis: Chiorine residual shall be measured in the field (immediately upon collection) at the same time and location in the distribution system as sampled. Record ND values as 0 (zero).  **Sample Type: RS-Routine Distribution Semple, RO-Crighnal Site Repeat, UR-Upstroam Repeat, DR-Oownstream Repeat, AR-Additional Repeat, or SS-Special Sample (as determined by DEP).  **SAMPLEMBELING & Lample as statin and analyzed shall be included in determining compilation, aren if that number is greater than the minimum required. If you collect repeat coliform samples within the distribution system during the | formation on your DEP Total Colf<br>the OEP Bacteriological Monthly ?<br>me time and location in the distrib<br>m Repeet, AR-Additional Repeat,<br>er is greater than the minimum re | form Sampling Plen. Report form and on the appropulation system as total coliforms or SS-Special Sample (as det equinod. If you collect repeat or | riste SWTR Form. i are sampled. Record ND errited by DEP). | values as 0 (zero).<br>Istribution system during the   |
|  |   | TO NOT Include raw when the constraint control of the repeat area and metade interestable. NO NOT include raw well (RW) or plant to (PT) chlorine residual semples in your calculations.  | . DO MOI INCRESS TERY WESSET (KYV.)  | or plant tap (P1) chlorine res  | chad semples in your calcu                                 | lations.   |
| III. COMPI<br>In accordance<br>of the menitor                    | III. COMPLIANCE REPORTING:<br>In accordance with 310 CMR 22, 15(2), if i<br>of the mentioning period, whichever it see          | III. COMPLIANCE REPORTING:  Total # of Samphas Collected for Month 6:  Recordance with 310 CMR 22.16(2), if making paper reports, TMC cycles of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are received of no later than 10 days after the end of the month in which the results are received of no later than 10 days after the end of the month in which the results are received of no later than 10 days after the end of the month in which the results are received of no later than 10 days after the end of the month in which the results are received of no later than 10 days after the end.   | coad for Months: 2<br>row MassDEP Regional Office no<br>above.   | Average Chik  | orthe Result of All Sand of the month in which th          | Average Chlorine Result of All Samples For Month (mg/L): 0.23 0 days after the end of the month in which the results are received gr no later than 10 days after the end |
| cartify under  | r penalties of law that is<br>and complete to the L   | l casity under parallèse of law that I am the paraca euthorizad to fill out this form and the information contraked herein to<br>true, accurate and complete to the best extend of try knowledge.   |  | Primary Certified Operator Signature and Date:  | T  | man & Mecan 6.8.2020   |
|  | DEP Review Status:  | Status:   | Review Comments:   |   |  |  |



### Massachusetts Department of Environmental Protection - Drinking Water Program

| Treatment Plant                             |   | SOUTH OF THE                      | ater Worl                       | KS                                   | Town 1                                     | Crack   | Daminator                                 | 1  |   |
|---|---|-----------------------------------|---------------------------------|--------------------------------------|--|---|---|--|---|
| Name  |   | Long F                            |                                 |                                      | Treatment Plant (Ds²                       |   | Barrington<br>3003-01T                    | PWSID <sup>1</sup><br>Reporting                        |   |
|   |   |                                   |                                 |                                      | I TOBUREDI PHINE IDE                       | 113   |   | Month  |   |
| Chemical & O                                | perational info                           | mation                            | _                               |                                      |  |   |   | Reporting Year   | 2020  |
| Chemical Name <sup>4</sup> :                |   | odium hyp                         |                                 |                                      | Purchased Strength (%)*:                   | 12.5  | T   | rget Range/min <sup>12</sup>                           | ≥ 0.5 mg/L at POE   |
| Manufacturer <sup>6</sup> ;                 | Slack Chemic                              |                                   |                                 |                                      | Purchased Density (lbs/gal) <sup>9</sup> : | 9.97  |   | get Dose (mg/L) <sup>15</sup>                          |   |
| Product Name <sup>4</sup> :                 | sodium i                                  | ypochlorite                       | (12.5% b                        | leach)                               | Dilution Factor or Mix Ratio 19:           | 1.00  |   | m Setting (low)  |   |
| cason for Adding<br>Chemical <sup>7</sup> : | Disinfection -                            | - Segment                         | #1 and Se                       | ament #2                             | NSF Approved (Y/N) <sup>11</sup> :         | Y   |   | m Setting (high) <sup>14</sup> :                       |   |
|   |   |                                   |                                 |                                      | 0  | ato of last anti-ol   | phon valve inspecti                       | Ontrenta compat 18                                     |   |
| Daily Reporting                             | ng  | Note                              | : Water qua                     | illy data repo                       | ried on C-ADD form may also be             | considered for co   | ompliance purpose:                        |  | III) S-Xuffeller  |
|   | Treated Water                             |                                   | Chemical<br>ped                 | Objection                            |  | Parameters the<br>(G)rab  | esured", Results, U<br>or Continuous (A): | nite and Method –<br>Mlyzer <sup>21</sup>              | O&M Notee/Comments <sup>22</sup>  |
| Day   | Volume (gall) <sup>18</sup>               | Volume<br>(gal/day) <sup>17</sup> | Weight<br>(libs/day)**          | Ghamical<br>Used (ibu) <sup>16</sup> | Ghemical Dosage (mg/L) <sup>10</sup>       | a. chlorine<br>residual at end of<br>Segment 1 (mg/L)<br>via Kuntze<br>analyzer |   | C  | PWS note any aquipment breakdown, off-ine status, otherps in purchased product or batch moons day, measured percentages or disagree that are out of tampel range, and |
| 1   | 110021                                    | 2.3                               |                                 | 2.87                                 | 24   | □G ØA   | □G ⊠A                                     | □G □A  |   |
| 2   | 107438                                    | 2.3                               | _                               | 2.87                                 | 3.1  | 1.68  | 1,41                                      |  |   |
| 3   | 115990                                    | 2.3                               |                                 | 2.87                                 | 3.2  | 1.39  | 1.38                                      |  |   |
| 1   | 136606                                    | 2.3                               |                                 | 2.87                                 | 3.0  | 2.07  | 1.48                                      |  |   |
| 6   | 115306                                    | 2.3                               |                                 | 2.87                                 | 2.5<br>3.0                                 | 2.01  | 1.39                                      |  |   |
| 8   | 115294                                    | 2.3                               |                                 | 2.87                                 | 3.0  | 1.57  | 1.35                                      |  |   |
| 7   | 113051                                    | 2.3                               | _                               | 2.87                                 | 3.0  | 1.46  | 1.28                                      | -  |   |
| 8   | 121256                                    | 2.3                               |                                 | 2.87                                 | 2.8  | 2.14  | 1.34                                      |  |   |
| 9   | 133900                                    | 2.3                               |                                 | 2.87                                 | 2.6  | 1.54  | 1,45                                      |  |   |
| 10  | 127423                                    | 2.3                               |                                 | 2.87                                 | 2.7  | 1.50  | 1.36                                      |  |   |
| 11  | 108346                                    | 2.3                               |                                 | 2.87                                 | 3.2  | 1.94  | 1.25                                      |  |   |
| 12  | 116413                                    | 2.3                               |                                 | 2.87                                 | 3.0  | 2.13  | 1.12                                      |  |   |
| 13  | 114530                                    | 2.3                               | _                               | 2.87                                 |  | 1.52  | 1.15                                      |  |   |
| 14  | 124210                                    | 2.3                               |                                 | 2.87                                 | 3.0  | 1.89  | 1.24                                      |  |   |
| 15  | 129189                                    | 2.3                               |                                 | 2.87                                 | 2.8  | 1.97  | 1,30                                      |  |   |
| 16  | 126570                                    | 2.3                               | -                               | 2.87                                 | 2.7  | 1,71  | 1.30                                      |  |   |
| 17  | 135823                                    | 2.3                               | -                               | 2.87                                 | 2.5  | 1.45  | 1,30                                      |  |   |
| 18  | 122676                                    | 2.3                               |                                 | 2.87                                 | 2.8  | 1.71  | 1 17                                      |  |   |
| 10  | 134848                                    | 2.3                               | _                               | 2.87                                 | 2.6  | 1.74  | 1,10                                      |  |   |
| 20  | 151483                                    | 2.3                               |                                 | 2.87                                 | 2.3  | 1.44  | 1.16                                      |  |   |
| 21  | 149539                                    | 2.3                               |                                 | 2.87                                 | 2.3  | 1.13  | 1.08                                      |  |   |
| 22  | 156135                                    | 2.3                               | -                               | 2.87                                 | 2.2  | 1.02  | 1,49                                      |  |   |
| 23  | 142513                                    | 2.3                               |                                 | 2.87                                 | 2.4  | 1.02  | 1,51                                      |  |   |
| 24  | 113370                                    | 2.3                               |                                 | 2.87                                 | 3.0  | 1,18  | 1,30                                      |  |   |
| 25  | 128707                                    | 2.3                               |                                 | 2.87                                 | 2.7  | 2.75  | 1.01                                      |  |   |
| 26  | 125827                                    | 2.3                               |                                 | 2.87                                 | 2.7  | 0.90  | 1.02                                      | $\overline{}$  |   |
| 27  | 111984                                    | 2.6                               |                                 | 3.24                                 | 3.5  | 0.29  | 1.90                                      |  |   |
| 28  | 108196                                    | 2.6                               | 20                              | 3.24                                 | 3.6  | 1.71  | 1.40                                      |  |   |
| 29  | 104782                                    | 2.6                               |                                 | 3.24                                 | 3.7  | 2.54  | 1.41                                      |  |   |
| 30  | 101638                                    | 2.3                               | 2                               | 2.87                                 | 3.4  | 3.65  | 1.84                                      |  |   |
| ii /7 - 17                                  |   |                                   |                                 |                                      |  |   |   |  |   |
| Total                                       | 3702839                                   | 69.9                              | in<br>8                         | dicate total # o                     | of days the residual was off-target for    |   | certify under cone                        | tion of law that I a                                   | 0<br>on the person authorized to fill out this  |
| tbe result (daily av<br>strumentation used  | rerage, min/max, in<br>I (SCADA, chart re | stantaneous<br>corder, test ki    | reading, grab<br>t, bench, etc. | o, etc.) sample<br>) <sup>20</sup>   | location (entry-point, before/after fil    | ters, tenks, etc.)  | the bost extent of m PWS Auth             | etion contained h<br>y knowledge.<br>crized Person - ( | erein is true, accurate and complete to   |
|   |   |                                   |                                 |                                      | ly chlorine residual values provided       |   | Sign                                      | Print Name:  | James J. Mercer   |
| C   | lorins is monitored<br>orage value during | continuously                      | via a Kuntze                    | ensyzer Dei                          | y chlorine residual values provided        | are for the   |   |  |   |
|   |   |                                   |                                 |                                      |  |   |   | Title:   | Primary Certified Operator  |



### Massachusetts Department of Environmental Protection - Drinking Water Program TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

**SWTR** F

|  | CHRATICAL                           |   |  |  |
|--|-------------------------------------|---|--|--|
| PWSID#:                                    | 1113003 P4                          | NS Name: Housatonic Wat                       | er Works   | PWS Town: Great Berrington                       |
| Tonat                                      | nent Plant Name:                    |   |  | Clear Danniguer                                  |
| i reati                                    | nent Plant Name:                    | Long Pond                                     | Reporting Period → Month:  | June Year: 2020                                  |
|  |                                     |   |  |  |
| Filtered                                   | Water Turbidity Measured:           | (check only one)                              | uent ☐ Individual Filter Effluent <sup>1</sup> ☐   | Clearwell   Plant Effluent                       |
|  | -                                   |   | and the second s | Clearweit  |
|  | ration Convent                      | ional Direct Alternative                      | Monthly Turbidity (95%) NTU Limit = 0.3  | Max Day Turbidity NTU Limit = 1                  |
| recn                                       | nology:  Slow Sa                    | nd Diatornaceous Earth                        | Monthly Turbidity (95%) NTU Limit = 1  | Max Day Turbidity NTU Limit = 5                  |
| Day  | Max Filtered Water                  |   | Number of Turbidity Measurements   | Number of Turbidity Measurements >               |
| 7  | Turbidity Result <sup>2</sup> (NTU) | Number of Turbidity Measurements <sup>3</sup> | ≤ Monthly (95%) NTU Limit <sup>4</sup>   | Max Day NTU Limit <sup>6</sup>                   |
|  | 0.043                               | 6   | 6  | 0  |
| 2  | 0.043                               | 6   | 6  | 0  |
|  | 0.049                               | 6   | 6  | 0  |
|  | 0.047                               | 6   | 6  | 0  |
| 5  | 0.040                               | 6   | 6  | 0  |
|  | 0.055                               | 6   | 6  | 0  |
| 7  | 0.050                               | 6   | 6  | 0  |
| 8  | 0.043                               | 6   | 6  | 0  |
| ### ###  <br>############################# | 0.041                               | 6   | 6  | 0  |
| 10   | 0.047                               | 6   | 6  | 0  |
|  | 0.048                               | 8   | 6  | 0  |
| 12   | 0.043                               | 6   | 6  | 0  |
|  | 0.042                               | 6   | 6  | 0  |
|  | 0.041                               | 8   | 6  | 0  |
| 8  | 0.041                               | 6   | 8  | 0  |
| 17   | 0.041                               | 6   | 8  | 0  |
|  | 0.044                               | 8   | 6  | 0  |
|  | 0.039                               | 6   | 6  | 0  |
| 26   | 0.048                               | 6   | 6  | 0  |
| 21   | 0.054                               | 6   | 6  | 0  |
| 22   | 0.042                               | 6   | 6  | 0  |
| 23   | 0.043                               | 6   | 6  | 0  |
| 24   | 0.040                               | 6   | 6  | 0  |
| 25   | 0.054                               | 6   | 6  | 0  |
| 夢  | 0.041                               | 6   | 6  | 0  |
| 27   | 0.041                               | 6   | 6  | 0  |
| 28   | 0.040                               | 6   | 6  | 0  |
| 20   | 0.045                               | 6   | 6  | 0  |
| 36   | 0.041                               | 6   | 6  | 0  |
|  |                                     |   |  |  |
|  | Totals:                             | 180   | 180  | % Turbidity Meeting 85% Limit<br>8/A x 100 % = X |
|  |                                     | Α   | В  | (Enter on SWTR Form G)                           |
| . May be u                                 | sed by systems serving less th      | en 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). For continuous monitors count each 4-hour period as 1 measurement. Record the actual turbidity result at the specified interval of time. Do not average turbidity measurements. If DEP approved, 15-minute readings (i.e. 96 readings per day) may be submitted. Filtered turbidity data must be kept on file for DEP review.
- 4. Out of the # of turbidity measurements taken and recorded in the previous column, enter the number of turbidity measurements that were less than or equal to the Monthly (95%) NTU Limit for the filtration technology used.
- 5. If at any at time the filtered turbidity Max Day NTU Limit is exceeded, the DEP must be notified no later than the end of the next business day. For each exceedance, record the turbidity value(s) and date(s) on SWTR - Form G

| I certify under penalties of law that I am the person authorized to fill out this form and the information contained | PWS Authorized Signature:                         |  |
|--|---|--|
| herein is true, accurate and complete to the best extent of my knowledge.  | Date: 7/8/2020 Tittle: Primary Certified Operator |  |

In accordance with 310 CMR 22.15(2), if mailing paper reports. TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS More than 1 Disinfectant / Sampling Point

| - 6  |  |   |
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| Ington                 |                          |                | Interestivation matter   | 6) 7              | N. C. |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |      |      |      |      |      |      |      |       |        |
|------------------------|--------------------------|----------------|--|-------------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|-------|--------|
| Great Barrington       |                          |                | Inactivation Ratio Stan  | (OT casb/CT as a) | 62.3                                      | 109  | 54.8 | 47.3 | 64.9 | 28.7 | 53.6 | 48.4 | 44.7 | 202  | 700  | 69.0 | 61.7 | 97.1 | 4.   | 49.4 | 44.7 | 41.6 | 43.3 | 45.1 | 38.2 | 46.7 | 40.   | 53.0 | 66.9 | 56.5 | 48.4 | 74.8 | 0.68 | 87.0 | 448.4 | - CALL |
| PWS Town:              | Year: 2020               |                | THE RESERVE OF THE PARTY OF THE | eth<br>6th        |   |      |      |      |      |      |      |      |      |      | Ī    |      |      |      |      |      |      |      |      |      |      |      |       |      |      |      |      |      |      |      |       |        |
| Vorks                  | Month: June              |                | THE CONTRACTIONS   | - Sth             |   |      |      |      |      |      |      |      |      |      |      | l    |      |      |      |      |      |      |      |      |      |      |       |      |      |      |      |      |      |      |       |        |
| Housatonic Water Works | Reporting Period: Month: |                | Toslo/CT89.89  | 4th               |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |      |      |      |      |      |      |      |       |        |
| VS Name:               | Long Pond                |                | Modum Begun  | 3rd               | 2   | 6    | 2    | 0    | 33   | 3    |      | 2    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |      |      |      |      |      |      |      |       |        |
| Pws                    | - Fou                    |                |  | 2nd               | 42.2                                      | 40.6 | 42.2 | 38.  | 44.3 | 30.6 | 39.1 | 37.5 | 33.7 | 38.6 | 36.0 | 38.8 | 40.5 | 38.4 | 37.0 | 93.4 | 37.0 | 20.8 | 2000 | 24.2 | 7.00 | 20.7 | 30.00 | 43.0 | 8.8  | 35.5 | 39.5 | 71.6 | 64.2 | 68.7 | 91.5  |        |
| 1113003                | Treatment Facility Name: | ULF REPORTING: | THE RESIDENCE OF THE PARTY OF T | 181               | 10.1                                      | 8.2  | 12.6 | 13.4 | 10.6 | 9.1  | 14.6 | 11.0 | 10.9 | 14.1 | 13.5 | 6.1  | 12.2 | 15.0 | 11.8 | 44.8 | 12.0 | 190  | 200  | 200  | 100  | 200  | 2.0   | C S  | 0.17 | 0.12 | 6.8  | 3.2  | 16.7 | 20.4 | 24.8  |        |
| PWS ID#:               | Treatment F              | II. DALLY RI   | の一個ないのでは、  | Day               | -   | 7    | 60   | 4    | 2    | 8    | ^    | 80   | G    | 10   | 11   | 12   | 13   | 14   | 32   | 18   | 12   | 8    | 2 9  | 2 2  | 24   | 3    | 3 8   | 3 3  | 47   | 2    | R    | 27   | 28   | 28   | 30    |        |

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

Primary Certified Operator housatonicwater@gmail.com Title: Date: 7.8.202 Email: Fax: 413-528-3024 PWS Authorized Signature: 413-528-1780 Phone #:

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

To determine SUM (CT calc/CT 99.9), add (CT calc/CT 99.9) values from the first disinfectant sequence to the last from SWTR - Form!
 The Inactivation ratio (CT calc / CT 99.9) is determined before or at the first customer during peak hourly flow and if the SUM (CT calc / CT 99.9)
 CT 29.9)
 CH 99.9% Gierdia Inactivation indicates a SWTR Treatment Technique violation.

## Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

L PWS INFORBATION!

|                        |                            |                                       |                                | Inactivation Ratio <sup>9</sup>                        | eas Form L | see Form H | see Form H | 866 Form H | see Form H | ses Form H | see Form H | 800 FORTH IN | ede Form 14 | See Form H | see Forn H | see Form M | see Form H |
|------------------------|----------------------------|---------------------------------------|--------------------------------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Great Berrington       |                            | h C1 5th C1 6th                       |                                | Inactivation Retio <sup>8</sup><br>(CT celc / CT 99.9) | 62.2       | 40.9       | 42.2       | 34.0       | 44.3       | 30.6       | 39.1       | 37.5       | 33.7       | 38.6       | 38.0       | 39.8       | 40.5       | 38.4       | 37.9       | 33.4       | 27.8       | 30.3       | 24.4       | 18.7         | SO R        | 43.6       | 54.9       | 35.5       | \$8,5      | 71.8       | 64.2       | 66.7       | 91.6       |
|                        | Year: 2020                 | @ 2nc □ 3rc □ 4th                     |                                | CT <sup>7</sup><br>99.9                                | 26         | 28         | 26         | 28         | 25         | 28         | 25         | 25         | 24         | 24         | 23         | 23         | 23         | 23         | 23         | 23         | 22         | 12         | 17         | 21           | 20          | 20         | 9          | 18         | 18         | 19         | 18         | 18         | 20         |
| PWS Town:              | June                       | C 1st G 2nc                           | THE PASSESSION OF              | Water Temp <sup>6</sup> (°C)                           | 18.0       | 18.2       | 18.3       | 18.4       | 18.7       | 18.8       | 18.8       | 19.1       | 19.3       | 19.3       | 19.6       | 19.7       | 19.9       | 20.1       | 20.2       | 20.3       | 50.5       | 87.0       | 21.4       | 21.8         | 22.1        | 22.6       | 23.1       | 23.5       | 23.5       | 23.7       | 23.9       | 23.8       | 23.7       |
|                        | Month:                     | tent Application:                     |                                | pHs  | 7.34       | 7.34       | 7.35       | 7.33       | 7.33       | 7.33       | 7.33       | 7.35       | 7.34       | 7.34       | 7.32       | 7.34       | 7.35       | 7.36       | 7.35       | 98         | 7,35       | 25.7       | 7.00       | 733          | 7.32        | 7.34       | 7.34       | 7.35       | 7.35       | 7.40       | 7.40       | 7.41       | 7.43       |
| Housetonic Water Works | Reporting Period;          | Sequence of Disinfectant Application: | <b>新聞的時間與新聞的</b>               | CT Celc<br>(=C x T)                                    | 1117       | 1065       | 1108       | 870        | 1107       | 788        | 874        | 828        | 613        | 820        | 821        | 813        | 920        | 830        | 808        | (30        | 200        | 744        | 674        | 758          | 602         | 855        | 1023       | 621        | 693        | 1393       | 1167       | 1230       | 1707       |
|                        | Long Pond                  | nt 2 - storage tank effluera (POE)    | ing peak frounty flow.         | Disinfectant Contact Time <sup>4</sup><br>T (min.)     | 793        | 773        | 750        | 625        | 819        | 969        | 128        | 0.00       | 597        | 735        | 734        | (B)        | 26/        | 000        | 963        | 2003       | 210        | 100        | 530        | 511          | 492         | 299        | 786        | 612        | 683        | 732        | 835        | 970        | 626        |
| PWS Name:              | רס                         | Segment 2 - stora                     | ion dan                        | Disinfectant Concentration <sup>3</sup> C (mo/L)       | 1.41       | 1.38       | 1.48       | 1,59       | 1.30       | 07.7       | 27.0       | Ob.        | 05.7       | 27.        | 21.1       | 1.13       | 47.        | 00.1       | 06.4       | 11         | 140        | 1.46       | 90.1       | 1.49         | 1.22        | 1.51       | 1.30       | 1.01       | 1.02       | 1.90       | 1.40       | 1.41       | 1.64       |
| 1113003                | Treatment Facility Name: [ | Disinfectant*:                        | LY REPORTING All manusments to | Peak Hourly Flow <sup>2</sup><br>(gpm)                 | 118        | 123        | 124        | 98         | 111/       | 101        | 440        | 2.34       | /61        | /21        | 120        | 35         | 124        | 194        | 131        | -22        | 290        | 148        | 17.4       | 173          | 182         | 161        | 123        | 5          | 85         | 121        | 114        | <u>8</u>   | 3.         |
| PWS ID#:               | Treat                      |                                       | II. DALLY R                    | Day  | -          | 2          |            | •          |            |            | 0          |            | D C.       | 2 :        | - 62       | 45         | 2 4        | ,          | 2 4        | -          | 18         | 19         | ส          | 21           | 22          | 23         | Z          | 52         | 8          |            | 8 8        | 25         | B          |

Libe a separate form for each distributant plant Enter distributant and sequence position, e.g. "ozoner!" or "CIO,53". If more than one distributant sampling point, you must also complete SWTR form H and calculate the cummissive hardwatter ratio SUM. (CT calc(CT 69.9) to determine complence.

2. Peak hourly flow, means the highest purpage hour during the day, not the strainful peak flow at any instant.

3. The resident distributant concentration() ("C") of the water before or at the first customer must be measured each day during peak hourly flow.

3. The resident distributant contact fitne(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 distribution application application and the point at which the

residuel is mostared.

If the experiment she chieffe, the districted water must be massured at least once per day at each chlorine rosidual distriction to employ point during peak hourly flow.

If the important of the districted water must be massured at least once per day at each residual districted to concentration sampling point during peak hourly flow.

If the interviewed water must be massured at least once per day at each residual districted to a serve the serve of a serve that it is a serve to a serve the serve of a serve that is a serve that a serve that is a

loseitly under penulties of the farm the person authorized Signature: THOS Authorized Signature: THOS Authorized Signature: THOS Signature: TH

Email: housatonicwaten@gmail.com Title: Primary Certified Operator

Date: 2/8/2020

### Massachusetts Department of Environmental Protection - Drinking Water Program COMPLIANCE DETERMINATION FOR FILTERED SYSTEMS - Monthly Report

SWTR

|                       |  | 1113003  | 101-00  |   | PWS Name   |  | House  | atonic Wat   | er Works  |  | ]  | PWS Town   |  | Great Barrin  | alan         |
|-----------------------|--|--|---|---|--|--|--|--|---|--|--|--|--|---|--------------|
|                       |  | Plant Name:  |   |   | Long Por   | d  |  |  | Reportin  | g Period:  | Month:   | June   | Ye   | ar: 2020  | ]            |
| REAL                  |  | ORMANCE  |   |   |  |  |  |  |   |  | DOM:   |  | ( And  |   |              |
|                       | Monthly T<br>measurem  | urbidity (9:<br>ents taken   | 5%) NTU I<br>each mon   | Limit - The I   | turbidity lev<br>ration techn  | rel of a syste<br>rology used  | em's filtere<br>, otherwise  | d water mu<br>SWTR TT  | st be less<br>Violation (   | than or equa<br>(Tier 2)   | to the Mo  | ontly Turbidi  | y NTU Lis  | mit in at least   | 959          |
|                       | 180  | -  | A   |   |  |  |  |  |   | VTR - Form   | •  |  |  |   |              |
|                       | 180  | -  | В   | Total #<br>(SWTF  | of filtered<br>R - Form F)   | water turbid   | ity measu  | ements les   | s than or e   | qual to the s  | pecified lin   | nits for the f   | iltration te                                     | chnology us   | d.           |
|                       | 100,00%  | = (B/A   | ) X 100   | The pe  | rcentage o   | f turbidity m  | easureme   | nts meeting  | the Month   | nly Turbidity !  | 95% NTU  | Limit.   |  |   |              |
|                       | Max Da<br>SWTR   | y NTU Lim<br>TT Violation  | it - The tu   | rbidity level   | of a system  | n's filtered w   | rater must   | at no time o   | nxceed the  | Max Day N  | TU Limit fo  | or the filtratio   | n technol  | ogy used, ot  | nerw         |
|                       |  | R  | ecord the d   | date and turi   | bidity value   | for any me   | asurement  | s exceedin   | g the Max   | Day NTU.   | ☑ Chec   | k box if "Nor  | ne"  |   |              |
| D                     | ate  | Va   | luo   | Date  | Reported   | to DEP   |  |  |   | Date   | V  | alue   | Date   | e Reported t  | o D          |
| _                     |  | <u> </u>   |   |   |  |  |  |  |   |  |  |  |  |   |              |
| _                     |  |  |   | <del> </del>  |  |  |  |  |   |  |  |  |  |   |              |
| NF.                   | ECTION PE  | RPCRMA   | CE CHI  | ERGA  | sdrau is ba  | AIC HOURCES  | on within a  | 4 nours.   |   | NO.  |  |  | Response   | o is not cons   | aitec        |
|                       | SWIR TT  | ntry Minima<br>Violation (Ti   | um Disinfe<br>er 2).  |   |  |  |  |  |   | not be <0,2  |  | nore than 4  | hours.   |   |              |
|                       | Day  | Cl₂ mg/L   | Day   | Cl <sub>2</sub> mg/L  | Day  | Cl <sub>2</sub> mg/L   |  |  |   | ribution Sys   |  | Lau incom  |  | 3.81  |              |
|                       | 1  | 1.32   | 6   | 1.20  | 11<br>11   | 1.08   | Day<br>16  | Cl <sub>2</sub> mg/L   | Day   | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L  |              |
|                       | 2  | 1.30   | 7   | 1.14  | 12   | 1.09   | 17   | 1.12   | 21  | 0.96<br>1.07   | 26<br>27   | 0.80   | 31   |   |              |
| Н                     | 3  | 1.29   | 8   | 1.26  | 13   | 1.21   | 18   | 1.04   | 23  | 1.20   | 28   | 0.99   | Residual   | Measured  | 73           |
|                       | 4  | 1.32   | 9   | 1.31  | 14   | 1.20   | 19   | 1.02   | 24  | 1.15   | 29   | 1.30   |  | Free Cl <sub>2</sub> Total Cl <sub>2</sub>                        |              |
|                       | 5  | 1.24   | 10  | 1.16  | 15   | 1.21   | 20   | 1.05   | 25  | 0.84   | 30   | 1.51   | ПС   | ambined Cl  |              |
|                       | aren by aic  | residual fall<br>end of the r  | TEXT PROBLEM  | assuay. Ili   | e supplier (   | or water alsi  | A HIGHST FICE  | IA RIES ENGRA  |   |  |  | minosa cest a  | 111001BB VI                                      | HOLDING LEZE  | ILIAN I      |
| esto                  | aren by aic  | end of the r<br>ast 0.2 mg/L<br>Duration<br>Level  | within fou  | r hours.  | Reported t   | or water also  | - Indistrict   | ny ute Depa  | Date(s)   | Residual <<br>mg/L   | Duratio  | n of Low<br>I (hrs.)   |  | Reported to   | ) DE         |
| esto                  | red to at lea  | st 0.2 mg/L<br>Duration  | within fou  | r hours.  | e supplier   | or water also  | J Hust 100   | пу ше Бера   | Date(s)   | Rosidual <   | Duratio  | n of Low   |  | Reported to   | DE           |
| esto<br>a) R          | red to at lease and the seal of the seal o | Duration Level  System D secutive maples. If no  | within fou<br>of Low<br>(thrs.)<br>Disinfectar<br>onths. SW<br>residual is                        | Date F  Date F  Residual  TR TT Viol  detected, as  | Reported to  | o DEP  | sinfectant of residuals  | oncentratio<br>must be m<br>and analyz   | Date(s) I<br>0.2<br>on (V) canneasured at<br>ed.  | Residual < mg/L.   | Duratio<br>Love  | n of Low<br>I (hire.)  | Date   | Reported to   | HF-Q         |
| esto<br>a) R          | red to at lease saidual < ng/L  Distribution any two con recept sam  Total # of Hi   | Duration Level  System Discoutive maples. If no i  | within four of Low (thrs.)  | Date F  Date F  Residual  TR TT Vol  detected, aring month:   | Criteria - I<br>latton (Tier<br>n HPC sen  | Residual Dis   | sinfectant of<br>e residuals<br>e collected  | oncentration<br>must be m<br>and analyz<br>HPC sites   | Date(s) I 0.2  on (V) canneasured a ed.   | Residual < mg/L.   | Duratio  | or of Low I (hrs.)  greater than cation as tot                             | Date 5% of sar                                   | mples in a m  | HF-G         |
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| er in oses            | Distribution any two company t | Duration Level  Duration Level  System D Secutive maples. If no r PC samples  a g  a t  a t  a t  a t  a t  a t  a t | within four (thre.)  Disinfectar onths. SW residuel is staken dur                                 | nt Residual TR TT Viol detected, as ing month:  # of site: This Mon   | Criteria - I lation (Tier n HPC sam g s where Ci be the sam s HPC sam s where no s where no s where no   | Residual Dis 2). Chlorin ple must be 2). Chlorin ple must be 2 cl <sub>2</sub> residual me # of sites ples were a Cl <sub>2</sub> residual Cl <sub>2</sub> residual Cl <sub>2</sub> residual centration (n analyzed, 0,00%   | e residuals e collected # sasuremen reported o malyzed im was determined by the sasurer measurer HPC) less report HPC  | oncentration must be mand analyz.  HPC sites hits were man your mon stead of Clutted and no cited and Hithan or equipment was mand than or equipment was mand that was | o.2  In (V) canneasured a ed.  > 500/mL: ade, wheth thirty RTCR 2 residual a HPC sam PC > 500 C ade and H and to 500/m your mon | recidual < mg/L.  not be undete the same to the same t | ctable in grand low was determined to have cteriologic | preater than cation as tot FHPC sites cited or not a detectable at Report. | Date  5% of sar al coliform  ≤ 500/mL  v > 5% fi | mptes in a m<br>n distribution                                    | ontir<br>194 |

in accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP)

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

|                  |           |                          | #9<br>  | NAME AND ADDRESS OF TAXABLE PARTY.   |
|------------------|-----------|--------------------------|---|--|
| 1000000          | 0,0021700 | Year, 2020               | 3rd   4lt   5th   | Section of the sectio |
| Diate T          | LIMO CANL | Month: June Y            | 1st C 2nc C   | Children of the Control of the Contr |
| Water Works      |           | Reporting Period: Month: | Sequence of Disinfectant Application; 27 1st 10 2nc 10 3nd 10 4th 10 5th 10 6th |  |
| PWS Name         |           | Long Pond                | nent 1 - post clearwell (tap in 200-fl tong pipe)                               | ords turbons durithm smalls from the flow  |
| PWS ID#. 1113003 |           | Treatment Facility Name  | Disinfectant <sup>3</sup> Segn  | D. DARLY REPORTINGS: All recognisions  |

### Inactivation Ratio® \$00 FORM H See Form H Inactivation Ratio<sup>8</sup> (CT calc / CT 99.9) CT, R R R R R R R Water Temp<sup>8</sup> ઈ Ŧ 701 CT Calc Dismectant Contact Time T (min.) Concentration<sup>3</sup> C (mg/L) Peak Hourly Flow? Day

1. Use a separate form for each distribution point. Enter debilicidant and sequence position, e.g. "accord.!" or "CICP\_3". If more than one distributant sampling point, you must see complete SWTR Form H and outside the cummdedive hardward not be absoluted for a ray five day, not the absolute peak flow at any instant.

2. Then residual distribution remains the lightest purpage hour daring the day, not the absolute peak flow at any instant.

3. The residual distribution to the point such that the consoner must be measured each day daring peak hourly flow.

4. The distribution contact time(s) ("T) of the vestor before or at the first outsomer must be made in consoner must be determined for a such day daring peak hourly flow. The sine T used in calculating OT, is the time it takes the vestor, daring peak hourly flow, to move between the point of distribution and the point at viving the testing that it is the time it takes the vestor. Author peak hourly flow, to move between the point of distribution and the point at viving the residual in the first peak hourly flow.

is indeparted.

If the system uses the eclaration are per day at each chicker of the distriction water must be measured at least once per day at each chicker traisformer trai

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

Fax: 413-528-1780 1000 Phone #: 🖊 PWS Authorized Signature:

413-528-3024

Date: 7.8.202C

Title: Primary Certified Operator Email: housetonioweten@geneal.com

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are

# Massachusetts Department of Environmental Protection - Drinking Water Program CHLORINE/CHLORAMINES - MONTHLY REPORT

| I. PWS IN   | I. PWS INFORMATION:   |  | •   |  |  |  |
|---|---|--|---|--|--|--|
| MC  | HTNOM   | June YEAR: 2020  |   |  |  |  |
| PWS   | PWS ID #: 111   | 1113003 PWS Name: Housatonic Water Works   | r Works   | City/Town:   | Great Barrington   | Class: DOM DITNC DNC   |
| II. ANAL)   | TICAL INFOR   | II. ANALYTICAL INFORMATION: Refer to your MassDEP Coliform Sampling Plan and/or DBPR monitoring plan to help complete this section.  | ld/or DBPR monito   | ring pian to help co   | omplete this sectio  | <b>9</b>   |
| Type M  | Type Measured: [년   | ☑ Free Chlorine ☐ Total Chlorine ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐   | Analytical Method:  | nod: SM 4500-CI D D  |  | Б □ G □ H I ASTM_D1253-  |
| N Q   | Notes:  |  |   |  |  |  |
|   | DEP AF  | DEP APPROVED SAMPLE SITE INFORMATION   | CHI ORINE   | COLLECTION AND ANALYSI   | ND ANALYSIS <sup>3</sup> :   |  |
| Sample  | DEP Location  | DEP Approved SAMPLE LOCATION   | RESULT <sup>2</sup>   | DATE   | TIME   | COLLECTED AND ANALYZED BY:   |
| RS  | EP1   | Point of Entry   |   | 8/47/2020  | 44.06  | Tribut Vancilous   |
|   |   |  |   |  |  |  |
| RS  | 001   | Pleasant and Main  | 0.41  | 6/17/2020  | 14:50  | Tim Vreeland   |
| RS  | 002   | Brookside School   | 0.37  | 6/17/2020  | 14:40  | Tim Vreeland   |
|   |   |  |   |  |  |  |
|   |   |  |   |  |  |  |
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|   |   |  |   |  |  |  |
|   |   |  |   |  |  |  |
|   |   |  |   |  |  |  |
| DEP Sample  | Type, Location Cod  | DEP Sample Type, Location Codest, and DEP Approved Sample Site Location must correspond to the same information on your DEP Total Cofform Sampling Plan  SWITR systems: HPC must be collected at distribution sites with zero chlorine residual and results reported on the DEP Bacteriological Monthly Report form and on the appropriate SWTR Form.  | n on your DEP Total Colfe<br>Bacteriological Monthly F                              | om Sampling Plan<br>taport form and on the appr  | opriate SWTR Form.   |  |
| *Sample Type<br>*AI <u>DISTRIBI</u><br>month, you r | e: RS-Routine Distrit<br>LIION samples take<br>must also measure fr | *Sample Type: RS-Routine Distribution Sample, RO-Original Bitle Regist, UR-Updateam Repeat, IR-Dominisean Repeat, AR-Additional Repeat, or SS-Special Sample as determined by DEP).  *AI <u>DISTRIBUTION</u> samples taken and analyzed shall be included in determining compliance, even if that number is greater than the minimum required. If you collect repeat coldorm samples within the distribution system during the month, you must also measure for a detectable chlorine residual at the repeat sites and include these samples. DO NOT include raw water (RVP) or plant top (PT) chlorine residual samples in your calculations.   | art AR-Additional Repeat,<br>at, AR-Additional Repeat,<br>eater than the minimum re | or S9-Special Sample (as of<br>quired. If you collect repeat<br>or plant tap (PT) chlorine r | ms are samped. Record N<br>fetermined by DEP).<br>coliform samples within the<br>earthust samples in your call | Kecond NIJ values as 0 (zero).<br>IP).<br>within the distribution system during the<br>in your calculations. |
| III. COMPL  | III. COMPLIANCE REPORTING:  | Ting: Total # of Samples Collected for Month.  | or Month <sup>5</sup> : 2   | Average CI   | slorine Result of All  | Average Chlorine Result of All Samples For Month <sup>6</sup> (mg/L): 0.39                                   |
| of the monitor                                      | ing period, whicheve  | in excusement in the Cart of 19(1), it making paper reports. IMC oppes on the report must be enclaved by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are received at no later than 10 days after the end of the month in which the results are received at no later than 10 days after the end of the month in which the results are received at no later than 10 days after the end of the month in which the results are received at no later than 10 days after t | ssDEP Regional Office no  | later than 10 days effer the   | end of the month in which  | the results are received gr no later than 10 days after the end  |
|   |   | The state of the s |   |  | •  |  |

DEP Review Status:

☐ Accepted

□Disapproved

Review Comments:

Primary Certified Operator Signature and Date:

₹.8.202c



James J. Mercer < housatonicwater@gmail.com>

### Response to MASSDEP 8/12/20 letter

1 message

James J. Mercer < housatonicwater@gmail.com>

Thu, Aug 20, 2020 at 6:06 PM

To: "Doherty, Deirdre (DEP)" <deirdre.doherty@state.ma.us>, "Harrington, Brian D (DEP)" <br/>
righton, Brian D (DEP)" <br/>
ri

Bcc: Mark Pruhenski <MPruhenski@townofgb.org>, "William E. Martin" <wem@martinoliveira.com>

Hi,

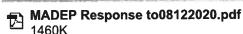
Please see the attached response. Thank you.

Jim



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

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August 20, 2020

VIA EMAIL: deirdre.doherty@state.ma.us

Ms. Deirdre Doherty
Drinking Water/Municipal Services Chief
Bureau of Water Resources
Massachusetts Department of Environmental Protection (MassDEP)
436 Dwight Street
Springfield, MA 01103

RE: Housatonic Water Works Company PWSID #1113003

Response to MassDEP 8/12/20 letter

Dear Ms. Doherty:

Below are responses to your letter of August 12, 2020 compiled with the assistance of company consultants.

 MassDEP requires Housatonic to continue Special Monitoring as required in August 2018 and Housatonic may continue that monitoring at alternate locations approved in writing by MassDEP.

**Response:** Sampling for the special monitoring program restarted on August 5, 2020, and the results were provided to MassDEP.

2. MassDEP requires HWW to (1) provide a written justification of this distribution residual goal, providing the operational basis for this target and detailing both the positive and negative impacts of such operations, including the potential for discolored water; (2) identify any seasonal adjustments HWW has made; and (3) provide the Operation and Maintenance manual pages that reflect the goal, any seasonal adjustments in operation and the operational tasks to achieve the stated distribution residual goal.

### Response:

- 1) Disinfection is of utmost importance. Killing pathogenic microorganisms is the top priority for water treatment.
  - Maintaining a chlorine residual of at least 0.2 mg/L in the far reaches of a distribution system is the standard minimum goal in the U.S. drinking water supply industry, and is our goal as well.

80 Maple Avenue, Suite 1, Great Barrington, MA 01230

- Operationally, if 0.2 mg/L is a minimum goal in the distribution system, then one
  would need to target a range higher than that to provide a factor of safety in the
  outcome. Further, for HWW there is a long lag time between changes in chlorine
  dose at the water treatment plant and when those changes are observed near the
  ends of the distribution system (including about 10 days of time in the one milliongallon storage tank). We should not set too low a target because of the long time
  between a change in dose and a resulting response impact in the distribution system.
- HWW's target range for chlorine residual in the distribution system is very common for U.S. water systems, as is shown by the results of the 2017 Water Utility Disinfection Survey Report published by the American Water Works Association (AWWA, April 2018). Figure 27 from that report, copied below, shows a majority of the U.S. water utilities surveyed had target minimum chlorine residuals for their distribution systems in the range of 0.2 to 0.5 mg/L (green outline added for emphasis).

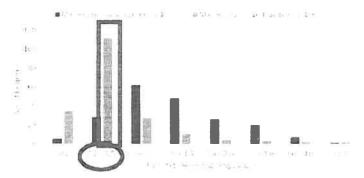


Figure 27 Target chlorine residuals for secondary disinfection (n=197)

Source: 2017 Water Utility Disinfection Survey Report, published by AWWA (April 2018)

- The distribution system chlorine residuals were higher in summer 2019 than in summer 2020, yet no similar colored water incident occurred in 2019. Also, there are areas with higher chlorine levels closer to the water treatment plant that have not experienced colored water.
- HWW's water chemistry is currently being studied by the Cornwell Engineering Group, experts in corrosion control chemistry and treatment.
- Housatonic Water maintains that distribution system chlorine residuals of 0.2 to 0.5 mg/L are appropriate for secondary disinfection, and we question MassDEP's characterization that "the high chlorine residuals are likely related to discolored water experienced by HWW customers."
- 2) Specific chlorine dosing adjustments were made on 5/20/20, 6/27/20, 6/30/20, and 7/20/20.
- See attached excerpt from our Operation and Maintenance manual (Attachment A).

MassDEP requires HWW to (1) provide the date in June 2020 of the instrument representative's
calibration and (2) provide documentation in the form of a copy of its instrument calibration/log
book (or other similar record) documenting each verification and calibration of its equipment for
the months of March 2020 through July 2020.

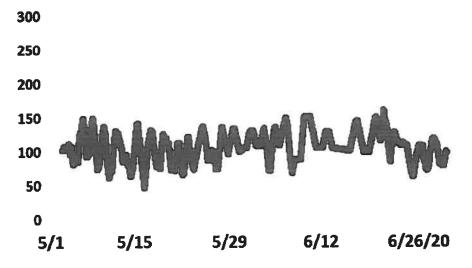
### Response:

- 1) The factory representative for Kuntze Meters (pH, chlorine, temperature) conducted instrument inspections and calibrations on May 7, 2020 and July 27, 2020.
- 2) We perform verification checks approximately biweekly, and more frequently when something seems unusual. We take some notes regarding the readings, and are in the process of improving our recordkeeping for instrument verifications and calibrations.
- 4. MassDEP requires HWW to (1) explain in writing the wide variation of Segment 1 chlorine concentrations while other factors did not vary so greatly; (2) provide a written evaluation on (a) the effect of reducing chlorine used to meet SWTR contact time requirements and (b) HWW's rational for its SWRR contact time practices; (3) explain in detail the hours of water treatment plant operation (i.e. from 8a.m.-4p.m.) and (4) provide the flow rate into and out of the clearwell (Segment 1) for the months of May through June 2020.

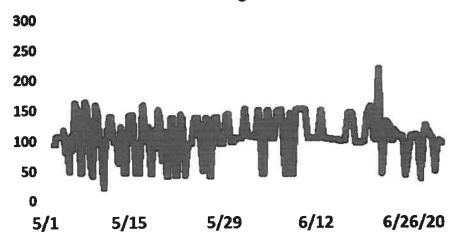
### Response:

- 1) The Segment 1 chlorine residual measurements have varied more than expected, and at times so has the Segment 2 chlorine residual. The wide variation may be due to issues with the online instrumentation (Kuntze monitors). HWW identified irregularities in the Kuntze monitor results, and the factory representative was brought in to evaluate the situation and make necessary adjustments, including replacement of a defective cable. Note that the finished water should have a more steady chlorine residual than the Contact Tank effluent as a result of mixing that occurs in the storage tank due to non-plug flow conditions.
- 2) The chlorine dose could be reduced and still meet the primary disinfection requirements, but HWW's current chlorine dosing is appropriate because of the need to maintain an adequate residual in the distribution system (secondary disinfection). Finished water residuals are mostly in the range of 1.0 to 1.5 mg/L, and distribution system residuals have been ≤ 0.4 mg/L for a long time. The chlorine residual range has both tightened and been lowered over time, and HWW is satisfied with the recent residuals measured in the distribution system. Additional information about HWW's disinfection strategy is provided in the Response to Question #2 above.
- 3) The water treatment plant is operated continuously, 24 hours per day.
- 4) SCADA data are available for the filter effluent flow (contact tank influent) and the contact tank effluent flow (what is pumped up to the 1-MG storage tank). Shown below are plots of values for both the filter effluent flow and contact tank effluent flow.

### filter effluent flow (gpm), 10-min. running avg.



### Contact Tank effluent flow (gpm), 10-hr running avg.



- 5) MassDEP requested clarification about the "total treated water" reported on the ChemAdd form. That is measured for water entering the distribution system after Segment 2 (Point of Entry, POE), and not for water from Segment 1 where the chlorine is added.
- 5. MassDEP expects to find the procedures for flushing within its Operations and Maintenance manual at the next Sanitary Survey.

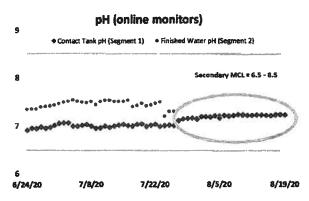
Response:

- HWW will include the flushing procedures in the O&M manual.
- 6. MassDEP notes that the pH of the chlorinated water from Segment 1 appears to be altered by its passage through the new cement-lined piping between the treatment plant and concrete storage tank and the concrete material of the storage tank.

### Response:

• We recognized that the difference in pH values for the contact tank and finished water were too large to be practical (sometimes more than a full pH unit difference), and we believed this was indicative of calibration needs for the pH monitors (primarily for Segment #2), and not a matter of the pipe or tank material. Accordingly, the Kuntze factory representative was brought in to make necessary adjustments. As a result, it appears that the pH meter issues have now been solved, and that the previous pH data for Segment #2 are not very reliable.

As shown in the plot below, the most recent calibration adjustments made on July 27, 2020 for both the finished water pH monitor and contact tank pH monitor brought these two pH levels into the same range (area of the green circle in the plot below).



7. MassDEP requires that HWW provide MassDEP written log of water main or joint breaks and leaks and known service connection breaks and leaks between July 2018 and August 2020. For each event, HWW shall provide the date, the pipe/joint material, the location of the break/leak and what the specific problem was (break/leak/other).

### Response:

| 12/10/2018 | Replaced hydrant replaced on Grove Street                   |
|------------|---|
| 11/19/2019 | Replaced hydrant on Housatonic Court                        |
| 11/25/2019 | Service line repair with clamps on-224 Highland Street      |
| 7/13/2020  | 2" plastic line, Ramsdell Road, repaired with a clamp       |
| 8/9/2020   | 2" plastic line, Ramsdell Road, repaired with a clamp again |

We understand the importance of the colored water problems, and are investigating potential solutions through our work with the Cornwell Engineering Group, Lenard Engineering, and Water Compliance Solutions, LLC. HWW held a public information meeting on August 13, 2020 to help inform our customers about our approaches for solving the colored water problems and we look forward to finding the correct solution.

Please let us know if you need anything further.

Sincerely,

James J. Mercer

**Enclosure** 

cc:

Brian Harrington, MassDEP (e-copy)
Douglas Paine, MassDEP (e-copy)
Rebecca Jurczyk, GB BOH (e-copy)
James Ericson, P.E., Lenard Engineering, Inc. (e-copy)
Richard W. Gullick, PhD, Water Compliance Solutions, LLC (e-copy)
Robert D. Cox, Jr., Esq., Bowditch & Dewey, LLC (e-copy)

### Attachment A. Excerpt from HWWCO O&M Manual

Filtered water flows by gravity to a two-cell, baffled contact basin located to the east of the filters. Just prior to exiting the operations building, the filtered water is disinfected by injecting sodium hypochlorite into the common header pipe. Hypochlorite is flow paced and pumped directly from a 350 gallon tank with no dilution at a dosage of approximately 1 mg/L. In 2010, Housatonic Water Works installed a 600-gallon containment structure for the tank. The dimensions of each cell of the contact basin are 46 feet by 15 feet for a total capacity of 125,000 gallons at the overflow elevation. Each cell has the identical configuration. A 39-foot long baffle wall is installed in each compartment, from floor to ceiling, creating a 7-foot wide channel. The filtered water pipe enters the contact basin 4-feet above the finished floor elevation. Six (6) feet away from the inlet pipe is a portal wall with 2-inch diameter holes drilled approximately 2 feet on center to a height of 6 feet. An identical portal wall is installed at the end of the other channel, located 6 feet from the end of the channel. The outlet pipe is installed 2 feet above the finished floor. There is no chemical addition for corrosion control. All piping that identifies direction of flow, raw water, filtered water and finished water has been marked.

Treated water flows by gravity back to the operations building where the high lift pumps discharge the treated water to the 1.0 MG storage tank installed to the east end above Long Pond. Water will flow from the high lift pumps into the top of the tank and exits the bottom into the distribution system based on system demand. The two pumps (one 20 horsepower and one 25 horsepower) operate in duty/stand-by mode and are controlled by the level in the storage tank.

All of the plant equipment can be operated manually or automatically based on tank levels. Normal operation, outside of filter cleanings, etc., is to have a single operator present two hours per day. The storage tank has both high and low level alarms. There is a continuous turbidity monitor for each slow sand filter, and a KUNTZE in-line chlorine/ Ph/ temperature analyzer records the chlorine concentration leaving the CT basin as it is pumped to the 1.0 MG tank(Segment 1) and a second KUNTZE analyzer records similar data on the water going to town (Segment 2). A high chlorine alarm set point is 1.50 mg/L with the low alarm set at 0.75 mg/L at Segment 2. There is no emergency generator. In the event of a power failure, there is no flow from the plant and all flow will come from the 1.0 MG storage tank only. Based on the 2019 ASR the average flow to the distribution system was 151,797 gallons per day, calculating to approximately 6.5 days of water storage at an average daily flow. It was noted that Housatonic Water Works formerly had a bypass at the filter plant which was used during periods of high demand. Water would bypass the filters during emergencies from the increase demand. In 1997, the by-pass was eliminated.

### Flushing Protocols:

The company follows a hydrant flushing sequence for 79 hydrants and blow-offs throughout its system. This protocol has been followed for many years. The flushing is broken into three



### James J. Mercer <housatonicwater@gmail.com>

### Fwd: Rubin Mills

1 message

Thu, Aug 27, 2020 at 10:42 AM James J. Mercer < housatonicwater@gmail.com > To: Charles Burger <cburger@townofgb.org>, Sean Van Deusen <svandeusen@townofgb.org>, Mark Pruhenski <MPruhenski@townofgb.org>

Hi,

Please be advised that at 8:15 this morning Hampshire Fire flowed over 500 gallons per minute through a standpipe at the Rubin Mill without HWWCO authorization which caused roily water throughout the entire town.

Sent from my iPhone

Begin forwarded message:

From: Christofer Palmer < CPalmer@hampshirefirellc.com>

Date: August 27, 2020 at 10:09:44 AM EDT

To: "housatonicwater@gmail.com" <housatonicwater@gmail.com>

Subject: Rubin Mills

Good morning Jim,

We performed a required five (5) year standpipe flow test per NFPA today, 08-27-2020 at Rubin Mills. We were unaware that we needed to contact the water department for this required five (5) year test. We have noted the account accordingly for any future Standpipe/hydrant testing where large amounts of water will be drained/flowed.

Going forward we will make sure to contact the water department and we apologize for any inconvenience this may have caused you or the town of Housatonic.

Thank you

Christofer

<sup>\*\*</sup>Please note our new address below\*\*



Service Manager

Christofer A. Palmer

Hampshire Fire Protection, LLC

20A Turnpike Industrial Road

Westfield, MA 01085

Office: 413-642-3287

Direct: 413-642-8477

Fax: 413-642-3792

www.hampshirefirellc.com



### James J. Mercer < housatonicwater@gmail.com >

### **RE: Rubin Mills**

1 message

Mark Pruhenski < MPruhenski@townofgb.org> To: "James J. Mercer" < housatonicwater@gmail.com> Thu, Aug 27, 2020 at 12:03 PM

Thanks Jim. I shared it with the SB. We've been getting calls and emails all morning.

From: James J. Mercer < housatonicwater@gmail.com>

Sent: Thursday, August 27, 2020 10:42 AM

To: Charles Burger <cburger@Townofgb.org>; Sean Van Deusen <svandeusen@townofgb.org>; Mark Pruhenski

<MPruhenski@Townofgb.org> Subject: Fwd: Rubin Mills

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Going forward we will make sure to contact the water department and we apologize for any inconvenience this may have caused you or the town of Housatonic.

Thank you

Christofer

\*\*Please note our new address below\*\*



Service Manager

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Direct: 413-642-8477

Fax: 413-642-3792

www.hampshirefirellc.com

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



lv yrundnsei@llawnaigin 2a

10,025

### FW: Fresh water in a clean toilot

Mark Pruhenski < MPruhenski@townofgb.org> to Brian, Deirdre, me

I'm forwarding this along as discussed at our meeting a few weeks ago. This is a photo sent from one

Inbox ×

Best, Mark



Hello Deirdre and Brian,

### Mark Pruhenski

Town Manager
413-528-1619 ex 2
mpruhenski@townofgb.org

Pronouns: he/him/his

Town of Great Barrington 334 Main Street Great Barrington MA 01230



The Secretary of State's office has determined that most e-mails to and from municipal offices and officials are public records. Consequently, confidentiality should not be expected.



### James J. Mercer < housatonicwater@gmail.com >

### FW: Housatonic water photo from yesterday

1 message

Mark Pruhenski < MPruhenski@townofgb.org>

Fri, Aug 28, 2020 at 9:44 AM

Cc: "James J. Mercer" < housatonicwater@gmail.com>

----Original Message---

From: Kate Burke <kburke@Townofgb.org> Sent: Friday, August 28, 2020 8:50 AM

To: Ed Abrahams <eabrahams@Townofgb.org>; Steve Bannon <sbannon@Townofgb.org>; Leigh Davis <LDavis@Townofgb.org>; Bill Cooke <bcooke@Townofgb.org>; Mark Pruhenski <MPruhenski@Townofgb.org> Subject: Housatonic water photo from yesterday

This was sent to me by Gretchen and Reed Anderson that live on Park Street. They asked that I share it with you all.

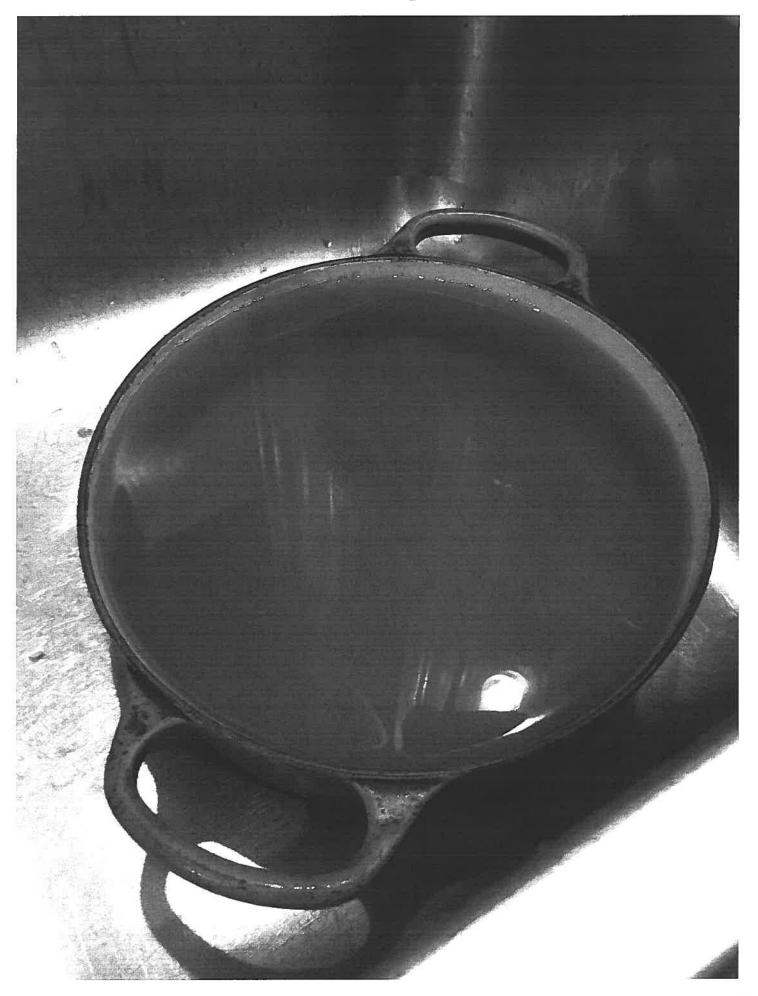
Mark was any sort of code red contact made with customers after the flushing at Robin Mills?

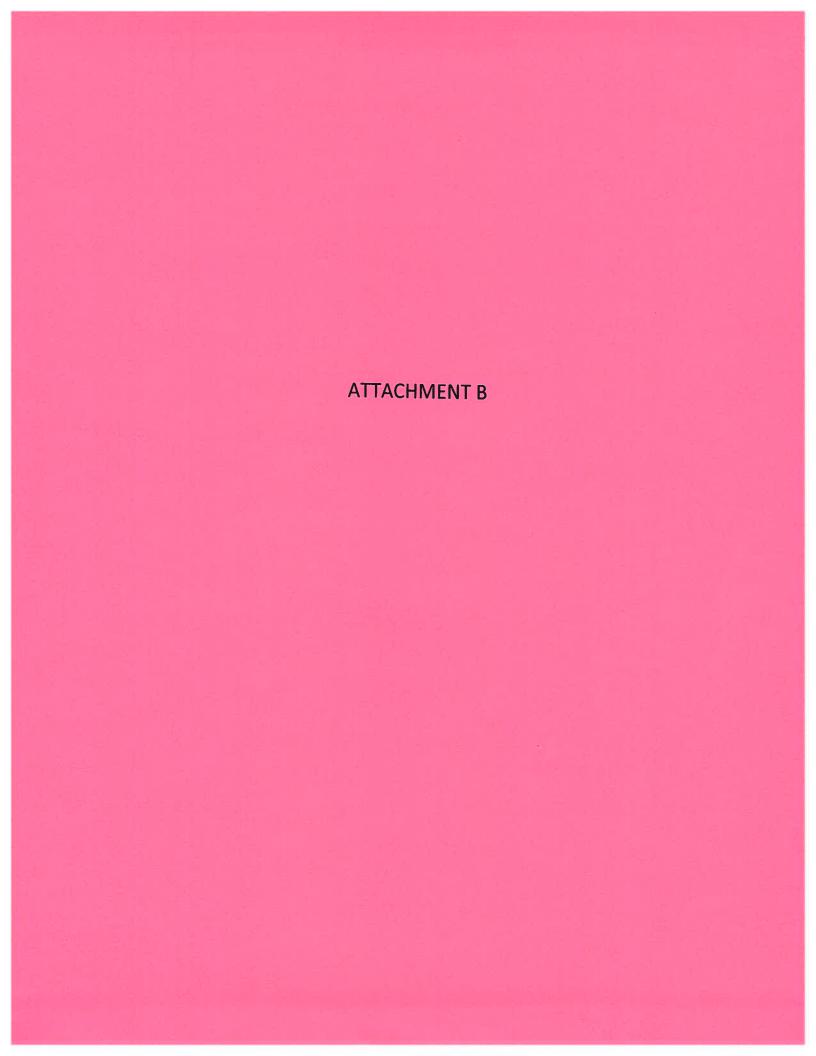
### 2 attachments



**IMG 2713.JPG** 1781K

ATT00001.c





### HOUSATONIC WATER WORKS AND CORNWELL ENGINEERING GROUP, INC. Colored Water Treatment Desktop Study

### **OVERVIEW OF PROJECT**

Housatonic Water Works (HWW) has in the past dealt with seasonal colored water complaints in addition to Lead and Copper Rule Action Level Exceedance issues. The objective of this study is to focus on colored water complaints and recommend treatment that will not negatively impact lead and copper corrosion in the system. This study will also allow identification and recommendations of appropriate water quality parameters (WQPs) to monitor, and what threshold values need to be maintained in order to establish and preserve optimal conditions. Also, any additional recommended testing (e.g., laboratory solubility studies) will be described. This project will evaluate iron/manganese corrosion issues, and will recommend remedial measures or additional efforts, as needed.

### **SCOPE OF SERVICES**

ENGINEER will provide the deliverables in electronic format. HWW will comment on the draft documents, and the ENGINEER will review and submit final versions to HWW.

The proposed study described in this work authorization will include:

- a. Review current treatment and distribution system and compile data: Review of current system infrastructure, operations, and water quality data. Evaluate additional data needs, and work with HWW to collect additional data as needed.
- b. <u>Develop Action Plan</u>: Review system monitoring, operations, and regulatory correspondence. Evaluate data and applicability of alternate remedial measures. Develop an action plan which will include short-term and long-term recommendations to address system issues. Short-term solutions may include recommendations for additional studies.
- c. <u>Engineering Memorandum</u>: The memorandum will provide a summary of findings including water characteristics and recommendations for future treatment, as well as future studies, if needed (e.g., laboratory solubility studies). This will also address any implications of the proposed changes for iron/manganese control on lead/copper CCT.

### Task 1: Review current treatment and distribution system and compile data

Compile existing data, evaluate additional data needs, and work with HWW to collect additional information (WQ data, GIS files, operational data, etc.).

### Task 2: Develop Action Plan

Evaluation of water mains and service line information available from HWW (GIS), and results of historical iron/manganese monitoring from treated water at the entry point and at locations in the distribution system. This may include evaluation of results from additional samples by HWW (including a list of recommended constituents, parameters, and locations). The findings will be summarized in the final project memorandum (see next item), which may include recommendations for system modifications or additional studies, as needed. Implications of

iron/manganese control strategies on simultaneous compliance (e.g., LCR, DBPR, RTCR, etc.) will be discussed and evaluated, and incorporated into Action Plan.

### Task 3: Engineering Memorandum

The final project deliverable will include a hardcopy and electronic version of a memorandum describing the findings from this study. This memorandum will be sealed by a Professional Engineer licensed in the state of Massachusetts.

### B. PROJECT SCHEDULE

The ENGINEER will begin the project as soon as possible. Project completion is targeted for September 30, 2020.

### C. PAYMENT TO ENGINEER

Cornwell Engineering Group, Inc. (ENGINEER) shall be reimbursed by HWW on a Time and Materials basis for an amount not to exceed \$5,000, unless adjusted at a later date for Task 1. After collecting data and other information in Task 1, a budget for Task 2 and 3 will be proposed and developed for HWW approval. Hourly rates shall include:

D. Cornwell = \$230/hr

• R. Brown = \$165/hr

• Project engineer = \$90/hr

**Housatonic Water Works** 

### D. DESIGNATION OF PROJECT MANAGERS

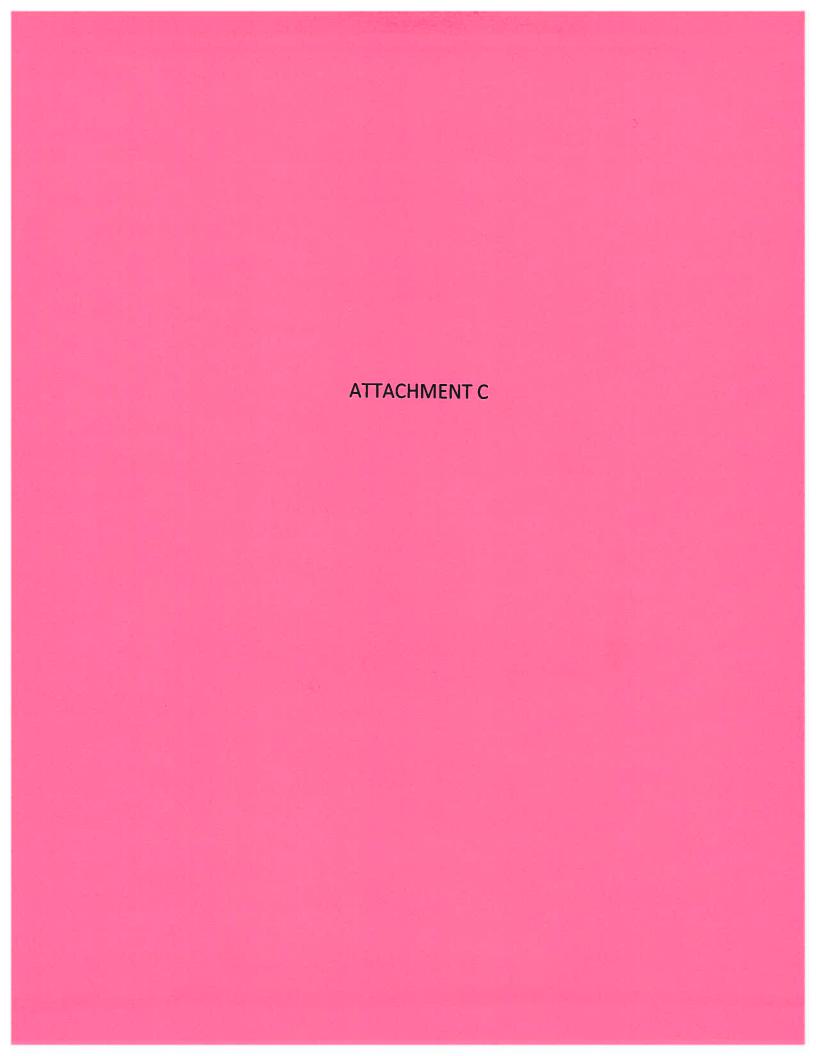
The Authority's Project Manager for this project will be James Mercer. The Engineer's representative (Project Manager) will be Richard Brown.

**IN WITNESS WHEREOF**, the parties hereto have caused their names to be set as of the day and year first above written.

Cornwell Engineering Group, Inc.

| <u></u>   | _        |
|-----------|----------|
| A 3 COULD |          |
|           | A. 3 com |

Date: 8/10/2020 Date: Aug us+ 10, 2020





James J. Mercer < housatonicwater@gmail.com>

|   | oumos of moreon anouatomovator agriculture  |
|---|---|
| discuss Housatonic corrosion control 1 message  |   |
| David A. Cornwell <dcornwell@cornwellinc.com> To: "housatonicwater@gmail.com" <housatonicwater@gmail.com> Mika <smika@cornwellinc.com>, "wcs.llc@comcast.net" <wcs.llc@< td=""><td>Thu, Jul 30, 2020 at 8:51 AM, Richard Brown <rbrown@cornwellinc.com>, Savannah@comcast.net&gt;</rbrown@cornwellinc.com></td></wcs.llc@<></smika@cornwellinc.com></housatonicwater@gmail.com></dcornwell@cornwellinc.com> | Thu, Jul 30, 2020 at 8:51 AM, Richard Brown <rbrown@cornwellinc.com>, Savannah@comcast.net&gt;</rbrown@cornwellinc.com> |
| David Cornwell is inviting you to a scheduled Zoom meeting.   |   |
| Join Zoom Meeting   |   |
| https://cornwellinc.zoom.us/j/7148875715  |   |
| Meeting ID: 714 887 5715  |   |
| One tap mobile  |   |
| +13126266799,,7148875715# US (Chicago)  |   |
| +19292056099,,7148875715# US (New York)   |   |
| Dial by your location   |   |
| +1 312 626 6799 US (Chicago)  |   |
| +1 929 205 6099 US (New York)   |   |
| +1 301 715 8592 US (Germantown)   |   |
| +1 346 248 7799 US (Houston)  |   |
| +1 669 900 6833 US (San Jose)   |   |
| +1 253 215 8782 US (Tacoma)   |   |
| Meeting ID: 714 887 5715  |   |
| Find your local number: https://cornwellinc.zoom.us/u/acHH0g6dl   | Nt  |
|   |   |
|   |   |
|   |   |
| invite.ics<br>3K  |   |



James J. Mercer < housatonicwater@gmail.com >

### **RE: discuss Housatonic corrosion control**

1 message

Richard Brown <RBrown@cornwellinc.com>

Thu, Aug 6, 2020 at 1:58 PM

To: "James J. Mercer" < housatonicwater@gmail.com>

Cc: Savannah Mika <SMika@cornwellinc.com>

Please review and contact me if you want to discuss. Best place to phone is cell (757-288-7338)

Richard A. Brown, PE

Cornwell Engineering Group, Inc.

rbrown@cornwellinc.com

757-873-1534 x224 (757-288-7338 cell)

HWW Proposal - DRAFT 2020-08-05.docx 27K

### HOUSATONIC WATER WORKS AND CORNWELL ENGINEERING GROUP, INC. Colored Water Treatment Desktop Study

### **OVERVIEW OF PROJECT**

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D. Cornwell = \$230/hr

• R. Brown = \$165/hr

• Project engineer = \$90/hr

### D. DESIGNATION OF PROJECT MANAGERS

The Authority's Project Manager for this project will be James Mercer. The Engineer's representative (Project Manager) will be Richard Brown.

**IN WITNESS WHEREOF**, the parties hereto have caused their names to be set as of the day and year first above written.

| Housatonic Water Works | Cornwell Engineering Group, Inc |
|------------------------|---------------------------------|
|                        |                                 |

| By:                           | Ву:   |
|-------------------------------|---|
| Name: Jim Mercer Title: Owner | Name: David A. Cornwell, PhD, P.E. Title: President |
| Date:                         | Date:   |



James J. Mercer < housatonicwater@gmail.com >

### RE: MassDEP correspondence on Water Quality 2020-08-12

1 message

David A. Cornwell < DCornwell@cornwellinc.com>

Thu, Aug 13, 2020 at 11:06 AM

To: "wcs.llc@comcast.net" <wcs.llc@comcast.net>, Richard Brown <RBrown@cornwellinc.com>

Cc: "James J. Mercer" <housatonicwater@gmail.com>, "Savannah Mika <SMika@cornwellinc.com <Savannah Mika" <SMika@cornwellinc.com>

They are off base. If anything it might need be higher, but its too early in our analysis to know that

There used to be a rule of thumb based on some testing the steel corrosion increased above CI of 0.4 mg/L. but the other mechanism of chlorine on iron pipes is to form hard Fe3+ turbucles that prevent discolored water.

Did we get any Fe/Mn data yet from the discolored water and from the POE?

From: wcs.llc@comcast.net <wcs.llc@comcast.net>

Sent: Thursday, August 13, 2020 10:41 AM To: Richard Brown < RBrown@cornwellinc.com>

Cc: 'James J. Mercer' < housatonicwater@gmail.com>; David A. Cornwell < DCornwell@cornwellinc.com>; Savannah

Mika <SMika@cornwellinc.com

Subject: FW: MassDEP correspondence on Water Quality 2020-08-12

Hi Richard.

MassDEP apparently doesn't like the 0.2 to 0.5 mg/L goal we set at Housatonic for the distribution system chlorine residual samples. They say in the attached letter that "Given the unlined iron piping in HWW's distribution and current warm water temperatures, the upper range of the distribution chlorine residual goal: 0.3,0.4 and 0.5 mg/l is high. The high chlorine residuals are likely related to discolored water experienced by HWW customers".

What do you think of that? Have you heard of cases where 0.3 or even 0.5 mg/L chlorine causes rusty or yellow water?

Thanks.

Rich

From: James J. Mercer < housatonicwater@gmail.com>

Sent: Wednesday, August 12, 2020 6:30 PM

To: Jim Ericson <ericson@lenard-eng.com>; Rich Gullick <wcs.llc@comcast.net>

Subject: Fwd: MassDEP correspondence on Water Quality 2020-08-12

Jim and Rich,

Are you available for a teleconference to discuss this matter Friday morning?

Jim

\_\_\_\_

80 Maple Avenue, Suite1

Great Barrington, Massachusetts 01230

(413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

The information contained in this email message may be privileged, confidential, and protected from disclosure. Any unauthorized use, printing, copying, disclosure, dissemination of or reliance upon this communication by persons other than the intended recipient may be subject to legal restriction or sanction. If you think that you have received this E-mail message in error, please reply to the sender and delete this email promptly.

----- Forwarded message -----

From: Doherty, Deirdre (DEP) <deirdre.doherty@state.ma.us>

Date: Wed, Aug 12, 2020 at 6:02 PM

Subject: MassDEP correspondence on Water Quality 2020-08-12

To: James J. Mercer (housatonicwater@gmail.com) <housatonicwater@gmail.com>

Cc: Harrington, Brian D (DEP) <a href="mailto:state.ma.us">brian.d.harrington@state.ma.us</a>, Paine, Douglas (DEP) <a href="mailto:douglas.paine@state.ma.us">douglas.paine@state.ma.us</a>

MassDEP is sending the attached correspondence to Housatonic Water Works in response to Housatonic's August 1, 2020 letter response and water quality/operations concerns. Attached are also the recent May and June 2020 monthly submittals noted in the correspondence for reference.

Please contact me with any questions.

Respectfully,

**Deirdre Doherty** 

**Drinking Water Section Chief** 



### Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs

### Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

Charles D. Baker Governor

Karyn E. Polito Lieutenant Governor Kathleen A. Theoharides Secretary

> Martin Suuberg Commissioner

SENT VIA ELECTRONIC MAIL housatonicwater@gmail.com

Mr. James Mercer, Treasurer Housatonic Water Works 80 Maple Ave Ste 1 Great Barrington, MA 01230 August 12, 2020

DWP-Great Barrington Housatonic Water Works PWSID# 1113003 Water Operations Water Quality

Dear Mr. Mercer:

MassDEP received your response dated August 1, 2020 to the July 29, 2020 MassDEP correspondence address operations and water quality questions and concerns. This letter follows up on your response, as MassDEP determined that Housatonic Water Works ("HWW" or "Housatonic") may not have understood some of the request or provided an incomplete response to some items.

The letter follows the same item list found in the July 29, 2020 MassDEP letter. And adds a new topic and request for information.

- 1. MassDEP requires Housatonic to continue Special Monitoring as required in August 2018 and Housatonic may continue that monitoring at alternate locations approved in writing by MassDEP. The current approved alternate locations are:
  - a. 314 N. Plain Road; and
  - b. 2 Bernard Gibbons Drive (Gt. Barrington Housing Authority)

MassDEP understands HWW will continue the required monitoring as HWW indicated. MassDEP requires that the water quality results be provided in writing to MassDEP within 24 hours of receipt. Submit results to Deirdre.doherty@mass.gov.

Y:\DWPArchive\WERO\Great Barrington-1113003-Water Quality-2020-08-12This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

2. MassDEP requires Housatonic to explain its deviation from Housatonic's proposed minimum chlorine residual target at the point-of-entry (POE). Housatonic proposed the target residual within the 2017 water treatment plant changes related to its new approach for reaching the required contact time requirements of the Surface Water Treatment Rule (SWTR). Housatonic proposed and MassDEP approved, a target residual POE Chlorine of 0.5 or 0.6 mg/l, depending on water temperature. Recently, POE has ranged from 1 to 1.89 mg/l. Measured chlorine residual within the distribution system in May was 0.24 & 0.21 mg/L and in June 0.37 and 0.41 mg/L according to the Chlorine/Chloramine Reports. MassDEP also requires Housatonic to explain the anticipated impact of high distribution system chlorine residuals given other factors, including temperature and the distribution system material of construction, as well as, the anticipated impact of a reduction in chlorine residual.

HWW's response states that HWW has, at some point, set a goal of 0.2-0.5 mg/l chlorine residual within the distribution, beyond the point-of-entry location. HWW states this is in part to compliance with the SWTR. HWW's monthly operation reports show that contact time is much higher than the minimum required for compliance with the SWTR. HWW's point of entry chlorine residual is regularly 1.0 mg/l or higher (June 27 was 1.9 mg/l average during peak flow). The SWTR's minimum residual required at the point-of-entry location is 0.2 mg/l. HWW's June distribution residuals were 0.37 and 0.41 mg/l. SWTR standards require a measurable residual (such as 0.05 mg/l) or adequate Heterotrophic Plate counts within the distribution system.

Given the unlined iron piping in HWW's distribution and current warm water temperatures, the upper range of the distribution chlorine residual goal: 0.3, 0.4 and 0.5 mg/l is high. The high chlorine residuals are likely related to discolored water experienced by HWW customers.

MassDEP requires HWW to (1) provide a written justification of this distribution residual goal, providing the operational basis for this target and detailing both the positive and negative impacts of such operations, including the potential for discolored water; (2) identify any seasonal adjustments HWW has made and (3) provide the Operation and Maintenance manual pages that reflect the goal, any seasonal adjustments in operation and the operational tasks to achieve the stated distribution residual goal.

3. MassDEP requires Housatonic to provide documentation of its water treatment plant analyzer calibrations to verify measurements.

HWW response indicates verifications and calibrations are periodically done and that the instrument representative calibrated the equipment in June 2020. MassDEP requires HWW to (1) provide the date in June 2020 of the instrument representative's calibration and (2) provide documentation in the form of a copy of its instrument calibration log book pages (or other similar record) documenting each verification and calibration of its equipment for the months of March 2020 through July 2020.

4. MassDEP requires Housatonic to explain the variation in chlorine dosing at the water treatment plant and the variation in chlorine residual measured exiting the clear well.

HWW's response did not address the concern cited by MassDEP. The question concerned the clearwell/Segment 1. MassDEP will describe in more detail its concerns in this letter. MassDEP has attached the May and June 2020 monthly operating reports (the SWTR and Chemical Addition forms) for your reference.

For Segment 1, MassDEP notes the peak flow is steady, as is the contact time. MassDEP notes the daily 'total treated water' volume has some variation (about 10%) but the daily Segment 1 chlorine concentration varies on a daily basis. MassDEP requires that HWW clarify if the 'total treated water' reported on the Chem Add form is the water from Segment 1 where the chlorine is added, or the water entering the distribution system after Segment 2. This will aid in understanding operations.

For example, looking at the last week or June (June 24-30) and HWW's the chlorine concentrations:

| Date   | Seg. 1        | Seg. 1   | Seg. 1    | Point-of-       | Total Contact    | Total treated |
|--------|---------------|----------|-----------|-----------------|------------------|---------------|
| (June) | Chlorine      | Chlorine | Contact   | Entry           | Time ratio (Seg. | water (gals)  |
|        | concentration | dose     | Time      | Chlorine        | 1 & 2, must ≥1)  |               |
|        | (mg/l)        | (mg/l)   | (minutes) | residual (mg/l) | ,                |               |
| 24     | 1.18          | 3        | 145       | 1.3             | 65.9             | 113,370       |
| 25     | 2.75          | 2.7      | 142       | 1.01            | 56.5             | 128,707       |
| 26     | 0.90          | 2.7      | 146       | 1.02            | 48.4             | 125,827       |
| 27     | 0.29          | 3.5      | 158       | 1.9             | 74.8             | 111,964       |
| 28     | 1.71          | 3.6      | 159       | 1.4             | 80.9             | 108,196       |
| 29     | 2.54          | 3.7      | 148       | 1.41            | 87.0             | 104,782       |
| 30     | 3.65          | 3.4      | 146       | 1.84            | 116.4            | 101,638       |

MassDEP requires HWW to (1) explain in writing the wide variation of Segment 1 chlorine concentrations while other factors did not vary so greatly; (2) provide a written evaluation on (a) the effect of reducing chlorine used to meet SWTR contact time requirements and (b) HWW's rationale for its SWTR contact time practices; (3) explain in detail the hours of water treatment plant operation (i.e. from 8a.m.-4 p.m.) and (4) provide the flow rate into and out of the clearwell (Segment 1) for the months of May through July 2020.

5. MassDEP requires Housatonic to provide MassDEP with its system flushing protocols. These protocols include the flushing schedule and direction (source to dead ends), how long Housatonic flushes each hydrant and the order of flushing through the system. MassDEP also requires Housatonic to document whether Housatonic has followed its protocols in 2020.

HWW responded with a description of its flushing practices. MassDEP expects to find the procedures for flushing within its Operations and Maintenance manual at the Next Sanitary Survey.

6. MassDEP requires Housatonic to explain in writing why it has not implemented approved treatment that incorporates both pH adjustment to maintain a consistent pH and polyphosphate treatment to coat pipes within the distribution system.

MassDEP has not concluded that the pH is not stable at HWW. If HWW submits a permit application for a treatment change involving a phosphate/phosphate blend, HWW will at that time be required to provide sufficient documentation to address the pH and its stability throughout the calendar year. MassDEP notes that the pH of the chlorinated water from Segment 1 appears to be altered by its passage through new cement lined piping between the treatment plant and concrete storage tank and the concrete material of the storage tank.

The new information requested of Housatonic Water Works:

MassDEP requires that HWW provide MassDEP written log of water main or joint breaks and leaks and known service connection breaks and leaks between July 2018 and August 2020. For each event, HWW shall provide the date, the pipe/joint material, the location of the break/leak and what the specific problem was (break/leak/other).

MassDEP requires a response to all of the above information request as soon as practical but no later than August 20<sup>th</sup>, 5 p.m. by email to the MassDEP emails below.

If you have questions concerning this matter, please direct them to me at (413) 755-2148 or Deirdre.doherty@mass.gov or Douglas Paine at (413) 755-2281 or <u>Douglas.paine@mass.gov</u>. Please note that we will check voicemails regularly, but electronic mail communication is preferred.

Respectfully,

Deirdre Doherty

Drinking Water Section Chief Bureau of Water Resources

Cc: DWP-Boston

DEP-WERO (e-copy)-B Harrington, D. Paine (eCopy) Great Barrington Board of Health

W:\BWR\WS\Discolored Water\1113003-Housatonic-Water Quality-2020-08-12



### Massachusetts Department of Environmental Protection - Drinking Water Program CHEMICAL ADDITION REPORT - \$10 CMR 22.15(4) Chemical Addition Reporting Requirements

| PWS Name                                   | Hou                        | satonic W                          | ater Worl                                   | (3   | Town                                  |                                   | Barrington  |   | The same of the same of   |
|--|----------------------------|------------------------------------|---|--|---------------------------------------|-----------------------------------|---|---|---|
| realment Plan                              | ıt                         | Long F                             | The Real Property lies, in case of the last |  | Treatment Plant (De <sup>1</sup>      |                                   | 003-01T   | Reporting   |   |
| Name                                       | <b>—</b>                   |                                    |   |  | TOURNESS PRINT ILLE                   | 1110                              | 003-011   | Month   | 71  |
| ternical & C                               | peretional info            | rmation                            |   | MS II WALL                                 |                                       |                                   |   | Reporting Year                                    | 2020  |
| emical Name                                |                            | odium hyp                          |   |  | Purchased Strength (%)*:              | 12.5                              | Te  | rgst Range/rain <sup>t3</sup>                     | : ≥ 0,5 mg/L at POE   |
| lanufacturer*                              | -                          |                                    |   |  | Purchased Density (Ibalgal)*:         | 9.97                              | g 000000000000000000000000000000000000                          | get Dose (mg/L) <sup>13</sup>                     | 1   |
| roduct Name <sup>®</sup><br>Ion for Adding |                            | rypochlorite                       | (12.5% b                                    | each)                                      | Dilution Factor or Mix Ratio          | 1.00                              | Ale   | m Setting (low)                                   |   |
| Chemical <sup>7</sup>                      | "I Dininfortion            | - Segment                          | #1 and Se                                   | gment #2                                   | NBF Approved (YM) <sup>11</sup> ;     | Y                                 |   | m Setting (high) <sup>to</sup>                    | 2.50  |
| ally Report                                | ing                        | Note                               | : White goal                                | ity deta repo                              | ted on C-ADD form may also be.        | the of last enti-sig              | thon valve inspecti   | on/replacement <sup>st</sup>                      | NA NA   |
| 100  |                            |                                    |   | 20 L. T. S.                                |                                       | 100                               |   | Months of the                                     |   |
| Section 1                                  |                            |                                    | Chanting)                                   |  |                                       |                                   | stured", Resulte, U   |   | QBM hinter/Comments <sup>48</sup>   |
| Description                                | Treated-Water              |                                    |   | Calculated                                 |                                       |                                   | ar Continuous (A):  |   |   |
| Day  | Volume (gal) <sup>50</sup> |                                    |   | Chemical<br>Used (thu) <sup>to</sup>       | Chemical Dosage (mg/L) <sup>18</sup>  | A. chiorina<br>residual at and of | b. chlorine<br>residuel at end of                               | e.  |   |
|  | 1                          | Volume<br>(gal/day) <sup>(7)</sup> | Weight<br>(Desking)                         |  |                                       | Segment 1 (mpl.)<br>via Kuntze    |   | 9   | PWS note any equipment breakdown, of-line status,<br>changes in purchased product or batch roking day,<br>measured personature or decages that are out of<br>larged range, etc. |
|  | 436400000                  | Manager 1                          |   |  |                                       | □G ☑A                             | □G ØA   |   |   |
|  | 100043                     | 1.9                                |   | 2.37                                       | 32                                    | 1.60                              | 1.63  |   |   |
| 1  | 111889                     | 1.9                                |   | 2.87                                       | 2.8                                   | 2.13                              | 1.53  |   |   |
| 1177.85                                    | 96973                      | 1.9                                | -   | 2.37                                       | 25                                    | 2.22                              | 1.57  |   |   |
| 5  | 98937                      | 1,9                                | _   | 2.37                                       | -29                                   | 2.07                              | 1.95  |   |   |
|  | 102225                     | 1.9                                |   | 2.87                                       | 28                                    | 1.21                              | 1.92  |   |   |
| 7  | 96077                      | 1.9                                |   | 2,37                                       | 3.0                                   | 1.15                              | 1.80  |   |   |
| 8  | 96413                      | 1.9                                |   | 2.87                                       | 2.9                                   | 1.26                              | 1.78  |   |   |
| 2  | 90299                      | 1.9                                |   | 2.37                                       | 3.1                                   | 3.18                              | 1.62  |   |   |
| 10   | 95793                      | 2.3                                |   | 2.87                                       | 8.6                                   | 1.35                              | 1.87  |   |   |
| 11   | 101754                     | 2.3                                |   | 2.87                                       | 3.4                                   | 2.56                              | 1,86  |   |   |
| 12   | 107990                     | 2.3                                | V-10  | 2.87                                       | 3.2                                   | 1,87                              | 1.72  |   |   |
| 13   | 105969                     | 2.3                                |   | 2,87                                       | 8.2                                   | 1.48                              | 1.68  |   |   |
| 14   | 104889                     | 2.3                                | / (000                                      | 2.87                                       | 3.3                                   | 2.18                              | 1.87  |   |   |
| 15   | 99852                      | 2.3                                |   | 2.87                                       | 3.5                                   | 1.84                              | 1.69  |   |   |
| -16  | 105262                     | 2.3                                |   | 2,87                                       | 8.8                                   | 1.75                              | 1.72  | 7   |   |
| 17   | 101496                     | 2.3                                |   | 2,87                                       | \$4,                                  | 2.61                              | 1.61  |   |   |
| 10   | 100882                     | 2.3                                | _   | 2.87                                       | 8,4                                   | 2.04                              | 1.79  |   |   |
| 20   | 108368                     | 2.3                                |   | 2.87                                       | 5.4                                   | 2.58                              | 1,84  |   |   |
| 21   | 108893                     | 2.3                                |   | 2.87                                       | 32                                    | 3.07                              | 1.89  |   |   |
| 22   | 110771                     | 2.3                                |   | 2.87                                       | 8.2                                   | 1,73                              | 1.39  |   |   |
| 23   | 118856                     | 2.3                                |   | 2.87                                       | 2.9                                   | 2.58                              | 1.55  |   |   |
| 24   | 125142                     | 2.3                                |   | 2.87                                       | 28                                    | 1.81<br>2.06                      | 1.57  |   |   |
| 25   | 115588                     | 2.3                                |   | 2.67                                       | 8.0                                   | 1.90                              | 1.63  |   |   |
| 26   | 121330                     | 2.3                                |   | 2.87                                       | 2.0                                   | 1.83                              | 1.51  | -   |   |
| 27   | 126824                     | 2.3                                |   | 2,87                                       | 27                                    | 2.10                              | 1.65  |   |   |
| 26   | 100530                     | 2.3                                |   | 2.87                                       | 84                                    | 1.84                              | 1.56  |   |   |
| 29   | 113526                     | 2.3                                |   | 2.87                                       | 80                                    | 2.18                              | 1.50  |   |   |
| 30   | 122366                     | 2.3                                |   | 2.87                                       | 2.8                                   | 2.22                              | 1.38  |   |   |
| 31   | 121872                     | 2.3                                |   | W2.87                                      | 2.0                                   | 1.52                              | 1.30  |   |   |
| Total                                      | 3296967                    | 67.7                               |   | ndicate total #<br>Summary <sup>25</sup> ; | of days the residual was off-target   | for the month (from               | n Section II) Month   | y Target  | 0   |
| e result (daily                            | sverage, min/max, i        | nslanteneous                       | madino ora                                  | h etc \ samet                              | b location (entry-point, before/after | Stere tenks stell                 | I cortify under pon<br>form and the infor<br>the best extent of | alties of law that I<br>mation contained          | em the person exchanteed to fill out this<br>herein is true, accurate and complete to   |
|  | (wor to r, what h          | overces, togt                      | un, venen, et                               | E.)***                                     |                                       | 1                                 | PWS Aut   | horized Person -<br>mature & Daty <sup>24</sup> ; | Jone Meco 6.  |
|  | Chlorine is moretone       | d continuous                       | y via a Kuntz                               | ow.  | illy chlorine residual values provide | d are for the                     |   | Print Name:                                       | James J. Heroer   |
|  | average value during       | the hour of                        | peak hourly f                               | low.                                       | ny sestamb residual values provide    | g are for the                     |   | Title:  | Primary Certified Operator  |



### Massachusetts Department of Environmental Protection - Drinking Water Program TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

**SWTR** 

| VXXXXXXXXX    |  |   |  |                                  |
|---------------|--|---|--|----------------------------------|
| PWSID#:       | 1113003 P  | WS Name: Housatonic Wa                        | ter Works  | PWS Town: Great Registron        |
| Treat         | ment Plant Name:   | Long Pond                                     |  | PWS Town: Great Barrington       |
|               | Name Associated as the control of th | ***************************************       | Reporting Period → Month:  | May Year: 2020                   |
| ************* | Water Turbidity Measured:  |   |  |                                  |
|               | Lenning N. Messeried:  | (check only one)   Combined Fifter Eff        | luent Individual Filter Effluent   | Clearwell Plant Effluent         |
|               | tration Convent  | tional Direct Alternative                     |  | The second minimum               |
| Teci          | nnology: Slow Sa   | nd Distomaceous Earth                         | Monthly Turbidity (95%) NTU Limit = 0.3<br>Monthly Turbidity (95%) NTU Limit = 1 | Max Day Turbidity NTU Limit = 1  |
|               |  |   | Towns (60%) HIU Little 1   | Max Day Turbidity NTU Limit = 5  |
| Day           | Max Filtered Water<br>Turbidity Result <sup>2</sup> (NTU)  | Number of Turbidity Measurements <sup>3</sup> | Number of Turbidity Measurements   | Number of Turbidity Measurements |
|               | 0.045  |   | ≤ Monthly (95%) NTU Limit <sup>4</sup>   | Max Day NTU Limit <sup>5</sup>   |
|               | 0.046  | 6   | 6  | 0                                |
|               | 0.047  | 6   | 6  | 0                                |
|               | 0.050  | 6   | - 6  | 0                                |
|               | 0.058  | 6   | 8  | 0                                |
|               | 0.050  | 6   | 6  | 0                                |
|               | 0.052  | 6   | 6  | 0                                |
|               | 0.052  | 6   | 6  | 0                                |
|               | 0.058  | 6   | 6  | 0                                |
|               | 0.044  | 8   | 6  | 0                                |
|               | 0.046  | 6   | 6  | 0                                |
|               | 0.058  | 6   | 6  | 0                                |
|               | 0.042  | 6   | 6  | 0                                |
|               | 0.047  | 6   | 6  | 0                                |
|               | 0.042  | 6   | 6  | 0                                |
|               | 0.046  | 6   | 6  | 0                                |
|               | 0.043  | 6   | 6  | 0                                |
| 18            | 0.068  | 6   | 6  | 0                                |
| 18            | 0.053  | 6   | 6  | 0                                |
| 20            | 0.051  | 6   | 6  | 0                                |
| 2             | 0.048  | 6   | 6  | 0                                |
| 22            | 0.045  | 6   | 6  | 0                                |
| 2             | 0.042  | 6   | 8  | 0                                |
| 24            | 0.049  | 6   | 6  | 0                                |
|               | 0.060  | 6   | 6  | 0                                |
| 20            | 0.045  | 6   | 6  | 0                                |
|               | 0.045  | 8   | 6  | 0                                |
| 28            | 0.043  | 6   | 6  | 0                                |
| AZ SAR        | 0.057  | 6   | 8  | 0                                |
| 36            | 0.051  | 6   | 6  | 0                                |
|               | 0.045  | 6   | 6  | 0                                |
|               | Totals:  | 186   | 186  | % Turbidity Meeting 95% Limit    |
|               |  | A   | В  | B/A x 100 % = X                  |
| May be us     | ed by systems serving less the   | 40.00   |  | (Enter on SWTR – Form G)         |

- 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.

Date:

- 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). For continuous monitora count each 4-hour period as 1 measurement. Record the actual turbidity result at the specified interval of time. Do not average turbidity measurements. If DEP approved, 15-minute readings (i.e. 96 readings per day) may be submitted. Filtered turbidity data must be kept on file for DEP review.
- 4. Out of the # of turbidity measurements taken and recorded in the previous column, enter the number of turbidity measurements that were less than or equal to the Monthly (95%)
- 5. If at any at time the filtered turbidity Max Day NTU Limit is exceeded, the DEP must be notified no later than the end of the next business day. For each exceedance, record the

| I certify under penel   | ties of | /aw   | thet   | l am  | the   | person                |
|---|---------|-------|--------|-------|-------|-----------------------|
| authorized to fill out th<br>herein is true, accurat<br>my knowledge. | e and c | and t | ote to | the t | ion o | ontained<br>extent of |

PWS Authorized Signature:

6.8.20 Frimary Certified Operator In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is

### Massachusetts Department of Environmental Protection - Drinking Water Program COMPLIANCE DETERMINATION FOR FILTERED SYSTEMS - Monthly Report

| SW | 7 | R |
|----|---|---|
|    | 2 |   |

| ID#:   |  | 111200   | 3  |  | PWS Nam  | ie:  | - Nai  | Sisterio Via   |   |   |   | A STATE OF  |   |  |           |
|--|--|--|--|--|--|--|--|--|---|---|---|---|---|--|-----------|
| т  | reatment   | Plant Name   | e:   |  | Long Po  |  | 100  | THE PARTY IN   |   |   |   | PWS Tow   | n:  | Great Baccio   | nten      |
| RED  | TENENT .   |  | न भागानः   |  | party to   | all and a second   | -  |  | Reporti   | ng Period:  | Month:  | Max   | Ye  | 2020   |           |
|  | Monthly  | Turbidity (  | 98%) NTI   | I louis The  | familia de la  |  |  |  |   |   | احتناه  | Towns.  | - P   | NO.  | e de      |
| _  | measurer   | nents taker  | each mor   | nth for the fill   | tration tech   | mai of a sysi<br>mology usec   | lem's filter<br>1. otherwis  | ed water mu<br>te SWTR TT  | St be less  | than or equ   | al to the M   | ontly Turbid  | ity NTU Lir                                   | nit in at least  | 95%       |
|  | 186  |  | -A   |  |  |  |  |  |   | WTR - Form  |   |   |   |  |           |
| - [  | 100  | 11720  | A  |  |  |  |  |  |   |   |   |   |   |  |           |
| L  | 188  |  | -8   | (SWTI  | R - Form F   | Mental music   | sky meest  | rementa les  | s than or   | equal to the  | specified iii   | mits for the  | filtration te                                 | chnology use   | id.       |
|  | 100,00%  | = (B/  | A) X 100   | The pe   | arcentage e  | of trutidity o   | 00001100   |  |   |   |   |   |   |  |           |
|  |  |  |  |  |  | _  |  |  |   | hly Turbidity   |   |   |   |  |           |
| - 1  | Max Da   | y NTU Lin  | nit - The t  | urbidity level   | of a system  | m's filtered v   | vater mus  | t at no time o   | orceed the  | May Day N   | TI I I imit 6   |   |   | ogy used, oth  |           |
|  | SWIR   |  |  |  |  |  |  |  |   |   |   | or the titrati  | on technoli                                   | ogy used, oth  | erw       |
| Dat  |  | R  | tecord the   | date and tur   | bidity valu  | e for any me   | asuremer   | nts axceedin   | g the Max   | Day NTU.  | 2 Chec  | k box if "No  | ne"   |  | _         |
| Date   |  | V  | afue   | Date   | Reported   | to DEP   | 124  | CLERK W  | 200   | Date  |   | alue  |   | Reported t   | . IN      |
|  |  |  |  |  |  |  | <b>不</b> 全   |  |   |   |   |   |   | · reported t   |           |
|  |  |  |  | +  |  |  | 200  |  |   |   |   |   |   |  |           |
| or ea  | ch day th  | e Max Day  | NTU limit  | is exceeded  | the DEP  | mund he  | Bod 5  |  |   |   |   |   |   |  |           |
| 4 hou  | urs then it  | is a SWTR  | TT (Tier 1   | i) violation re  | drigged by   | the notificat  | ined by the<br>ion within  | end of the i   | next busin  | ess day. SV   | VTR TT Vk   | dation (Tier  | 2). If DEP                                    | is not consu   | Mad       |
|  |  |  |  |  |  |  |  |  |   |   |   |   |   |  |           |
|  |  | HOR D  |  |  |  | THE LINE   | 400  | 1000   | -   |   | _   |   |   |  |           |
| P  | oint-of-E  | ntry Minim   | um Diabni  | loctant Resi   | dual Crite   | ria . Regirtu  | ni Dieloto   | daint anna   | 4-11-   |   |   |   |   |  |           |
| Is   | WIR IT   | Violation (T   | ier 2).  |  |  |  |  |  |   |   |   | nore than 4   | hours.  |  |           |
|  | Day  | Cl mas   |  | Minis  | mum Disti  | spection Re  | sidual at l  | Point-of-En  | iry to Dis  | ribution Sy   | stern   | (EXTINE   | Statistics.                                   | and the latest terminal  |           |
| -  | 1  | Cl <sub>2</sub> mg/L.  | Day  | US MIGHE   | Day  | Ch mort  | Day  | Cl <sub>2</sub> mg/L   | Day   | Cla mort  | Day   | Ci <sub>2</sub> mg/L  | Day   | Cl <sub>2</sub> mg/L   |           |
| F  | 2  | 1.50   | 7  | 1.76   | 1.1  | 1.86   | 16   | 1.72   | 21  | 1.22  | 26  | 1.35  | 31  | 1.26   |           |
|  | 3  | 1.49   | 8  | 1.03   | 12   | 1,72   | 17   | 1.61   | 22  | 1.49  | 27  | 1.50  |   | Measured   |           |
|  |  |  |  |  |  |  |  |  |   | 4 49  |   |   |   |  | 40        |
| 8  | 4  | 1.73   |  | 1.62   |  | 1.66   | 18   | 1.79   | 23  | 1.47  | 28  | 1.48  |   | Free Cla   |           |
| 100  | 5  | 1.88   | 9  | 1.62   | 14   | 1.67   | 19   | 1.84   | 24  | 1.55  | 29  | 1.45  |   | Free Cl <sub>2</sub> Total Cl <sub>2</sub>   |           |
| Estany   | 5<br>v time the  | 1.88   | 10   | 1.87   | 14<br>15   | 1.67<br>1.69   | 19   | 1.84   | 24<br>25  | 1.55  | 29<br>30  | 1.45  |   | Total Cl <sub>2</sub>  |           |
| at any   | 5<br>v time the  | 1.88   | 10   | 1.87   | 14<br>15   | 1.67<br>1.69   | 19   | 1.84   | 24<br>25  | 1.55  | 29<br>30  | 1.45  |   | Total Cl <sub>2</sub>  | aut n     |
| 30016  | 5<br>y time the<br>an by the<br>id to at lea   | 1.86<br>residual fa<br>end of the i<br>st 0.2 mg/L   | 10<br>Illa below 0<br>next busin<br>within fou   | 1.87   | 14<br>15   | 1.67<br>1.69   | 19   | 1.84   | 24<br>25  | 1.55  | 29<br>30  | 1.45  |   | Total Cl   | ut n      |
| Res  | 5 y time the an by the id to at lea  | 1.88 residual feed of the ast 0.2 mg/L   | 9<br>10<br>illa below 0<br>next busin<br>within fou  | 1.87<br>0.2 mg/L in the<br>eas day. The<br>ir hours.   | 14<br>15   | 1.67<br>1.69<br>Itering the d  | 19   | 1.84   | 24<br>25<br>supplier of<br>riment by  | 1.55<br>1.42<br>If water mus<br>the end of the  | 29<br>30<br>t notify the<br>re next bus   | 1.45  | Co<br>t as soon a<br>whether or               | Total Cl <sub>2</sub> embined Cl <sub>2</sub> s possible, b not the residu   | v let     |
| ) Res  | 5 y time the an by the id to at lea  | 1.86<br>residual fa<br>end of the i<br>st 0.2 mg/L   | 9<br>10<br>illa below 0<br>next busin<br>within fou  | 1.87<br>0.2 mg/L in the<br>eas day. The<br>ir hours.   | 14<br>15<br>16 water er<br>8 supplier  | 1.67<br>1.69<br>Itering the d  | 19   | 1.84   | 24<br>25<br>supplier of<br>riment by  | 1,55<br>1,42<br>If water mus<br>the end of the  | 30<br>t notify the<br>next bus  | 1.45<br>1.31<br>Departmentiness day v   | Co<br>t as soon a<br>whether or               | Total Cl <sub>2</sub>  | v let     |
| Res  | 5 y time the an by the id to at lea  | 1.88 residual feed of the ast 0.2 mg/L   | 9<br>10<br>illa below 0<br>next busin<br>within fou  | 1.87<br>0.2 mg/L in the<br>eas day. The<br>ir hours.   | 14<br>15<br>16 water er<br>8 supplier  | 1.67<br>1.69<br>Itering the d  | 19   | 1.84   | 24<br>25<br>supplier of<br>riment by  | 1.55<br>1.42<br>If water mus<br>the end of the  | 30<br>t notify the<br>next bus  | 1.45<br>1.31<br>Departmentiness day y   | Co<br>t as soon a<br>whether or               | Total Cl <sub>2</sub> embined Cl <sub>2</sub> s possible, b not the residu   | v let     |
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### SWTR I

## Massachusetts Department of Environmental Protection - Drinking Water Program

More than 1 Disinfectant / Sampling Point

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|                        |  |                 | The second second second  | DE CUENCIA MENO DE     | 46.1 Gillo / G1 89.89 | 24.8   | 20.7 | 20.3         | 26.7   | 25.5   | 24.8   | 24,6                   | 32.2   | 32.0 | 31.7 | 34.7 | 7.07   | 24.9 | 32.0  | 7 46 | 2 2 2 2  | 01.1   | 35.9   | 43   | 42.6   | 0.0   | 26.4                     | 9000   | 38.3                       | 38.6   | 41.8                         | 45,0   | 40.2 | 88   | 51.6              | 67.2               |
| ] PWS Town:            | Year. 2020   |                 |   | att.                   | 3                     |  |      |              |  |  |  |                        | 日本 日本田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田  |      |      |      | The Control of the Co |      | ALC: NO AND ADDRESS OF                        |      |  |  | PECHANISM STATE OF ST | \$25 THE RESIDENCE OF THE PARTY | 110  |   | SAVE DATE OF THE PERSONS | The state of the s |                            |  |                              | Sales Of the Paris S   |      |  |                   |                    |
| r Works                | Reporting Period: Month: Msy   |                 | THE RESERVE TO SERVE THE PARTY OF THE PARTY | #3                     |                       | The second secon |      |              |  | Contraction of the second  |  |                        | TO SOUTH TO THE REAL PROPERTY.   |      |      |      | A MACAGINETICAL PRINCIPLE OF   |      |   |      | The state of the s |  | Contract Con | The second secon | The second of th |   | CONTRACTOR DATE          |  |                            |  |                              |  |      | TO STATE OF THE PARTY OF THE PA |                   |                    |
| Housetonic Water Works | Reporting Perio  |                 | Cafe / CT 89.91   | ŧ                      |                       |  |      |              | STATE OF THE OWNER, WHEN   |  |  |                        |  |      |      |      | Part of the last o |      | SALES AND |      | STEEL STORY OF   |  |  |  | THE STREET, SALES OF THE PARTY  |   |                          |  | Was Company of the Company |  | The second second            |  |      | A STATE OF THE STA |                   | Sales and a second |
|                        | Processing the Party of the Par |                 | III Sydmenoo (G)  | Se                     |                       |  |      |              |  | The State of the S |  | NAME OF TAXABLE PARTY. |  |      |      |      | STATE OF THE PARTY |      |   |      |  |  | THE RESERVE OF THE PERSON NAMED IN   |  | The second second second   |   |                          |  |                            |  | And and the Land State Color |  |      | O HOUSE BARRIES  | The second second |                    |
| PWS Name:              | Long Pond  |                 | Bisinfects  | 2nd                    | 20.8                  | 16.7   | 15.1 | 21.3         | 21.9   | 21.3   | 20.7   | 27.8                   | 242  | 787  | 22.5 | 20.1 | 50.6   | 18.4 | 707   | 21.4 | 25,2   | 27.8   | 24.3   | 32.9   | 32.8   | 28.6  | 29.3                     | 30.8   | 28.8                       | 92.4   | 28.2                         | 28.8   | 48.6 | 38.1   | 20 K              | 3.3                |
| 1113003                | Treatment Facility Name:   | DAILY NEPORTING |   | 181                    | 4.0                   | 5.0  | 5.2  | 5.4          | 3.6  | 3,4  | 3.0  | 4.6                    | 7.8  | 5.0  | 78   | 0.0  | 3  | 0.4  | 600   | 0.0  | G.   | 8.2  | 7.0  | 8.6  | 10.2   | 7.8   | 11.3                     | 8.5  | 8.8                        | 9.7  | 67                           | 10.5   | 10.6 | 13.5   | 18.7              | 10.8               |
| PWS ID#                | Treatment F.   | IL DAILY RE     |   | À                      | -                     | 2  | 3    | The Appendix | ıç.  | 8  | 7  | 8                      | •  | 10   | =    | 42   | 100  | 2    | 4   | 2    | 9  | -  | 18   | 19   | 20   | 21  | 22                       | 23   | 24                         | 25   | 92                           | 27   | 28   | 28   | 8                 | 31                 |

To determine SUM (CT catc/CT 99.9), add (CT catc/CT 99.9) values from the first disinfectant sequence to the last from SWTR - Form!
 The inactivation ratio (CT catc / CT 99.9) is determined before or at the first customer during peak hourly flow and if the SUM (CT catc / CT 99.9)
 Yes response above indicates a SWTR Treatment Technique volation.

l certify under penalties of law that I am the person authorized Signature. person authorized to fill out this form and the Information contained herein is true, accurate and complete to the best extent of my Phone # 413-52

Date: 6-8-20

Primary Certified Operator

housatonicmeter@gmeil.com

Email: Fax: 413-528-3024 413-528-1780

In eccordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

|            | PWS Town 0 0000545  | Aby Year 2020                | Sequence of Disinfectant Application: 2 1st 2 2nc 3 3d 11 4t 11 5th 11 6th |  |
|------------|---------------------|------------------------------|--|--|
|            | setonic Water Works | Reporting Period: Month: May | Sequence of Disinfectant Application: 🗵 1st                                |  |
| The Office | HOLE HOLE           | Lang Pend                    | Segment 1 - post dearwell (top in 200-it long pipe)                        | Terrents takes during peak hours flow. |
| MI SM      |                     | Treatment Facility Name:     | Disinfectant1  | MAINTENANT WARE COMMISSION             |

|              | Inactivation Ratio                           | 0.12     | See Form M | T wood   |      | L III | H DULO H SOO | H muo           | H out           | Home        | How         | A max                                     |  | ALL LA   |          |      | H                 | A DEL     | HH        | HW     | Hum        | ittu H                                  | HE                             | HW       | H             | HW          | HE          | THE STATE OF | HW          | HE         | HE       | 10      | IE      | HW         |   |
|--------------|--|----------|------------|--|------|-------|--------------|-----------------|-----------------|-------------|-------------|---|--|----------|----------|------|-------------------|-----------|-----------|--------|------------|---|--------------------------------|----------|---------------|-------------|-------------|--------------|-------------|------------|----------|---------|---------|------------|---|
|              | Inactivati                                   | <u>-</u> | See F      | Date Enter I   |      | 1000  | 500 F        | See Form H      | H con Form H    | 888 Fc      | And Rome H  | See Form H                                |  | Ann Com  | 900 1    |      | 369 FC            | een rom n | 000 LO    | son Fo | See Form H | most Form                               | Bee Form H                     | Sab Form | 868 FO        | Stor Form H | See Form H  | Anna Form F  | 800 For     | Bos Form H | See Form | Dee For | see For | see Form H |   |
|              | Inactivation Ratio                           | 01 80.0) | 4.0        |  | 2    |       |              | 9               |                 | 6           | 80          | 8   | 9  |          |          |      |                   |           |           |        |            | The second                              |                                | 2        |               |             |             | daying as    |             | 65,00      | 5        |         |         |            |   |
|              | Inactivat                                    | 3        |            | 40   | 146  |       | 5 6          | 7               | STORY IN STREET | ei<br>ei    | y           | 7.  | No.  | -        | 8        | 1    |                   | 9         |           | 3      | -          | The second                              | 9.                             | 10.      | 3.7           | , I .       | 8.6         | 9.6          | 9.7         | 6.7        | 10.1     | 10.0    | 13.0    | 13.7       |   |
|              | ਹੈ<br><b>8</b> ਹੈ                            |          | 2          | 28   | 98   | Ki    | AK           | 20              | 43              | 4           | 339         | 49  | 40   | 47       | 43       | 67   | 48                | 43        |           | 3 5    | 3          | SAN | 2                              | 9        | N.            | 37          | -           | 39.00        | 2           | 28         | 92       | 19      | 50      | 2          |   |
|              | ·  | 1        |            | STATE OF THE PARTY |      |       | -            | -               |                 |             | The Section |   | THE STATE OF THE PARTY OF THE P |          |          |      |                   |           |           |        |            |   |                                |          |               |             |             |              |             |            |          |         |         | 1          |   |
|              | Water Temp <sup>6</sup><br>( <sup>2</sup> C) |          | 6.3        | 8.8  | 8.8  | 9.7   | 108          | 100             | 90              | 108         | 108         | 10.7                                      | 10.7   | 104      | 10.8     | 10.3 | 103               | 10.5      | 40 B      | 4 6 15 | 200        | NA P                                    | 971                            | 87       | 25            | 10.4        |             | 4.0          | 4 6         | 5.6        | 0        | 99      | 97.     | 47.0       |   |
|              | *  | +        |            | the state of   |      | TV TV |              |                 |                 | -           |             | -   | THE PERSON   |          | STATE OF |      | NAME OF THE PARTY | L         |           | -      |            |   | -                              |          |               | The same of |             |              |             |            |          |         |         |            | - |
|              | ¥  | 4 /4     | 18.        | 7.69   | 7.48 | 7.40  | 7 43         | 2 40            | Y               | 1.44        | 101         | 7 12                                      | 11/  | 7.16     | 7.16     | 7.12 | 7.18              | 7.11      | 7.49      | 7 40   | 200        |   | 85.                            | 100      | 5             | 1           | A'O         | 000          | 8           | 686        | 300      | 200     | Can o   | 80 00      |   |
|              |  |          | 1          |  |      |       |              | 1               |                 |             |             |   |  |          | 200      |      | NA SELL           |           |           |        |            |   |                                | 1        | 1             | 1           | 1           | 1            | 1           | t          | 1        | +       | +       | +          |   |
|              | CT Calc                                      | 166      |            | 197  | 282  | 6     | 2            | 448             | 04.9            | 200         |             | 200                                       | 200  | 260      | 200      | 204  | 222               | 288       | 244       | 385    | 278        | 379                                     | 1                              | 600      |               | 2002        | 0.00        | 004          | -           | 204        |          | 2000    | 377     | 244        |   |
|              | - P  | +        |            |  | -    |       |              | 100             | -               |             | -           | -   | 1  | 1        |          | -    | ALL VALUE         |           | PAT SELLO |        |            | -                                       |                                | -        |               | -           | -           | L            | -           | 1          |          |         |         | 1          |   |
|              | ent Contact Tir<br>T (min.)                  | 88       | 36         | 8 8  | 2    | 3     | Z            | 63              | g               |             | 2 5         |   |  | 141      |          |      |                   | G)        | 0         | 8      | STATISTICS |   | A COLUMN                       |          | The second    |             |             |              |             |            |          |         |         |            |   |
|              | Disinfectant Contact Time*<br>T (min.)       |          | 1          |  |      |       | =            | Design and      |                 | A THE PARTY | 1           |   |  |          |          |      | 18                | 2         |           | 13     | 13         | 1                                       | 13                             | 15       | 98            | 14          | 10          | S.           | 3           | 145        | 465      | 1       | 160     | 18         |   |
|              |  |          |            |  | 1    | 1     | 1            | CANADA SE       |                 |             | H           |   | +  |          | 1        | 1    | 1                 | 1         |           |        |            |   | A STATE OF THE PERSON NAMED IN |          |               |             |             | -            |             | L          |          | ŀ       |         | H          |   |
| Disinfectent | Concentration                                | 1.60     | 2 53       | 222  | 200  |       |              | 1,02            | 1.15            | 138         | 3 18        | 1.96                                      | 2 5.0  | 38.7     | 3 46     | 200  | 4000              | 100       |           | 261    | 204        | 2.58                                    | 8 07                           | 1.73     | 2.68          | 1.81        | 208         | 8            | 163         | 2 10       | 184      | 2.18    | 22      | 1 52       |   |
| L            |  |          |            |  |      |       |              | No. of the last |                 | MILES PARTY |             | N. C. |  | A COLUMN |          | 1    |                   |           |           |        |            |   | Section 1                      |          | Samuel Street |             | がないた        |              | Kall Samuel |            | The same |         |         |            |   |
|              | reak Houny Flow<br>(gpm)                     | 162      | 23         | 62   | 091  |       | 2            | 8               | 52              | 25          | 52          | 8   | 22   | 33       | 2        | 2    | 2                 |           |           | 7      | 2          | 2                                       | 2                              | 2        | 2             | 2           | \$ 10 miles | 2            | 2           | ~          | ~        |         | 10 mm   |            |   |
| 1            | X G  |          |            |  |      |       |              |                 | +               | ALC: UNIT   |             | 1   | 11   | •        | -        |      | -                 |           | 1         |        | -          | 27                                      | STATE OF THE PERSON NAMED IN   | 15       | 16            | 15,         | 16          | 15.          | 九           | 152        | 16.      | 15.     | 152     | 15,        |   |
|              | Day  | -        | 2          | e  | 4    | 4     |              | ,               |                 | 80          | 6           | 9   | Ŧ  | 12       | 13       |      | 15                | 48        | ŀ         |        | 2          | 2                                       | a                              | 2        | 2             | R           | 2           | 52           | 8           | 72         | 23       | 88      | 8       | E          |   |

singling point. Enter desidectont and sequence position, e.g. "cooney!"- or "COO,do"-. If more than one distributent sampling point, you must also complete BWTR Form H and calculate the cummulative brackers on the CO.

Calcifor 19.5) to determine compliance.

1. The residual definitions constructed by the state of the state of

I certify under penalties of law that I am the person subscitzed to fill out this form and the fromestion contained penalties thus, accurate and complete to the best extent of my knowledge.

PWS Authorized Signature:

Date: 6 -8 -20 413-528-3024

Title: Primary Certifled Operator Emel: househorkwiter@emel.com

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

|                       |  | TOTAL STREET   |
|-----------------------|--|--|
|                       | C 5th C 6th  |  |
| Year: 2020            | 2nc 🗆 3rc 🗀 4th  |  |
|                       | icetion: 🗆 1st 🖪   |  |
|                       | nce of Disinfectant Appli  |  |
| 2                     | POE) Seque   |  |
| Long Pond             | - alorage tank efficent  | ANTION POST PANTA FOR  |
| те:                   | nt". Segment 2   | negotypoperies folions   |
| Treatment Facility Na | Distrifects  | MANAGER INCOME.  |
|                       | Treatment Facility Name: Long Pond Reporting Period: Month: May Year: 2020 | Long Pond   Reporting Period: Month: May   Segment 2 - Storage tank efficient (POE)   Sequence of Disinfectant Application:   1st   2 2n |

|      |                            | Distinfactant                          |                                     | 1  |                     |       |                         |     |                                 |  |                         |
|------|----------------------------|--|-------------------------------------|--|---------------------|-------|-------------------------|-----|---------------------------------|--|-------------------------|
| À    | Peak Hourly Flow?<br>(gpm) | Concentration <sup>3</sup><br>C (mg/L) | Disimfectant Contact Time* T (min.) | 1 Time*  | CT Calc<br>(=C x T) | H.    | Water Temp <sup>a</sup> | CT. | Inactivation Ratio <sup>8</sup> | * 60 00 00 00 00 00 00 00 00 00 00 00 00 | Inactivation Ratio      |
| -    | 8                          | 163                                    | 4044                                |  | A work              |       |                         |     |                                 | 99.0)                                    | 715                     |
| 2    | 110                        | 1.63                                   | 696                                 | 1  | 1700                | 8,50  | 7.9                     | 88  | 20.8                            | -  | See Form H              |
| 6    | 124                        | 1.67                                   | 794                                 |  | No.                 | 8,50  | 62                      | 8   | 18.7                            | t  | the Form Li             |
| *    | 30                         | *0*                                    | 407                                 |  | 1200                | 8.54  | 8.4                     | 98  | - AK                            | I  | Con Com Li              |
| G.   | 404                        | 200                                    | 878                                 | 100  | 720                 | 8.55  | 98                      | 100 | 0.70                            |  | See Lam H               |
|      |                            | 78.                                    | 890                                 | 100  | 1713                | 220   | 80                      | 8   | 81.5                            |  | Soe Form H              |
| 0    | 100                        | 1.80                                   | 882                                 | C104450  | - sant              |       | 200                     | 8   | 21.9                            |  | See Form H              |
|      | 108                        | 1.78                                   | RSA                                 | -  | dhaa                | 200   | 9.6                     | 20  | 21.3                            |  | SES Form M              |
| 80   | 101                        | 1.60                                   | 600                                 |  | 2000                | 00.00 | 9.7                     | 75  | 20.7                            |  | See Form H              |
| a    | 112                        | 1 62                                   | 200                                 |  | 2000                | 7.80  | B,8                     | 99  | 811                             |  | Bath Engel II           |
| 10   | 122                        | 181                                    | and<br>and                          |  | 1367                | 7,80  | 9.6                     | 28  | 24.2                            |  | See Form H              |
| Ŧ    | 118                        | 1.88                                   | 820                                 |  | 1007                | 0.7   | 8.5                     | 23  | 28.7                            | H  | Form L                  |
| 2    | 144                        | 3.5                                    | 0.00                                |  | 2201                | 7.70  | 9.5                     | 28  | 27.1                            | H  | The Form L              |
| 23   | 167                        | 1.66                                   | 000                                 | 1  | TURE                | 7.60  | 9.6                     | 23  | 20.6                            |  | Distriction of the last |
| 3    | 122                        | 1.87                                   | 250                                 | THE PARTY OF THE P | 2012                | 7.60  | 9.6                     | 25  | 18.4                            | ŀ  | See Form M              |
|      | 139                        | 1.69                                   | 878                                 |  | 4774                | 7.80  | 103                     | 48  | 25.4                            | 200                                      | See Form H              |
|      | 181                        | 172                                    | 723                                 | THE STATE OF THE PARTY OF  | 6070                | 0/7   | 10.0                    | 8   | 21.4                            | _  | See Form H              |
|      | 119                        | 1.61                                   | 800                                 | 1  | 450                 | 007   | 107                     | 40  | 26.1                            |  | see Form H              |
| 20 9 | 99                         | 1,78                                   | 620                                 | COLUMN TO SERVICE  | 0690                | 207   | 6.0                     | 48  | 27.8                            |  | See Form H              |
|      | 119                        | 1.84                                   | 806                                 | -  | 4469                | 367   | A.V.L                   | 9   | 24.3                            |  | BB6 FORTH               |
|      | 110                        | 1.89                                   | 724                                 | State S  | 4449                | 087   | 7                       | 46  | 32.9                            |  | see Form H              |
|      | 8                          | 1.39                                   | 787                                 |  | 1008                | 2.40  |                         | *   | 32.0                            | 200                                      | tee Form H              |
| N    |                            | 1.55                                   | 719                                 | 1  | 4447                | 200   | 12./                    | 3   | 28.6                            |  | Bee Form H              |
|      | 33                         | 1.57                                   | 716                                 | -  | 1124                | 7.40  | 40.0                    | 8   | 20.3                            |  | tee Form H              |
|      | 149                        | 1,63                                   | 628                                 |  | -                   | 200   | 10.0                    | 88  | 30.8                            |  | Bee Form H              |
| ٥    | 128                        | 1.61                                   | 735                                 |  | 4440                | Rich  | 20.0                    | 98  | 20.0                            |  | see Form H              |
|      | 2                          | 147                                    | 673                                 | THE STATE OF   | BAR                 | 100   | 200                     | R   | 32.1                            |  | See Form H              |
|      | <del>8</del>               | 1.65                                   | 583                                 |  | 930                 | 1 20  | 10.0                    | 2   | 28.2                            |  | Soo Form H              |
|      | 901                        | 168                                    | 976                                 |  | 1401                | 1,000 | RC                      | 3   | 29.6                            |  | See Form H              |
| 2 2  | 130                        | 1.50                                   | 726                                 |  | 1087                | 737   | 140                     | 88  | 40.0                            |  | oper Form M             |
|      | 131                        | 1.38                                   | 2.19                                |  | 640                 | 5 5   | 200                     | R   | 28                              |  | See Form H              |
|      | 148                        | 130                                    | 848                                 |  | 844                 | 700   | 200                     | 28  | 33.6                            |  | Bee Form H              |
|      |                            |  |                                     |  | -                   | 00.7  | 0.71                    | 17  | 31.3                            |  | Coo From U              |

(CT cabifor 19.5) is determine complemen.
2. Park hourly flow masses the highest purpage hour during the day, not the absolute peak flow at any instant.
3. The section distriction concentration (CT) of the water before or at the flat customer must be measured each day during peak hourly flow.

4. The distriction concentration (CT) must be described by the section of the flat customer must be measured at least once per day at each or absolute of the flat concentration are not be section of the section of the distriction and the point of distriction and flow peak hourly flow, to make the clother, the pix of the distriction and the peak must be measured at least once per day at each residual distriction developed to the section of the distriction where must be measured at least once per day at each residual distriction developed to the section of the distriction where must be measured at least once per day at each residual distriction developed to the section of the distriction where the contract of the distriction where must be measured at least of the section of the distriction where the contract of the distriction wh 1.Ube a separate form for each disinfactual/templay point. Enter disinfactant and sequence position, e.g. "connert" or "CO\_GG". If more then one disinfactant earpting point, you must also complete SWTR Form H and calculate the cumulative hackedon majo SUM

l certify under panalities of law that I are the person authorized Signature:

person authorized to file out this form and the information correlated heart is frue, accounts from the file out this form of the month in which the results are in accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are

Title: Primary Certified Operator

Email: housatonicwater@gmeil.com

# Massachusetts Department of Environmental Protection - Drinking Water Program CHLORINE/CHLORAMINES - MONTHLY REPORT



| PWS Name <sup>1</sup> | HOTE - Repar to "Ma        | mater Cher                        | mical Addition       | n Report Gui            | dance and instructions" for detail                        | A TANK OF THE PARTY   | 100000000000000000000000000000000000000   | A PERSONAL PROPERTY OF THE   | and a second   |
|-----------------------|----------------------------|-----------------------------------|----------------------|-------------------------|---|---|---|--|--|
| reatment Plan         | •                          | satonic V                         |                      | KS                      | Town  |   | Barrington  | PWSID  |  |
| Name                  | -//                        | Long i                            | -Orid                |                         | Treatment Plant (D#                                       | 1113  | 3003-01T  | Reportin   | g .  |
| emical & A            | perational Info            | mm adf                            |                      | -                       |   |   |   | Reporting Year   | 1.   |
| mical Name            |                            | sodium hyp                        | ochlorite            | 1100                    | Duranta and Discount and                                  |   |   | in netes   | 2020   |
| lanufacturer*         |                            |                                   |                      | thage, NY)              | Purchased Strength (%)*:<br>Purchased Density (lbs/gal)*: | 12.5  |   | trget Rangelmin <sup>t</sup>   | THE STATE OF   |
| oduct Name*           | sodium                     | ypochlorite                       | (12.5% b             | leach)                  | Dilution Factor or Mix Ratio <sup>14</sup> :              | 1.00  |   | get Dose (mg/L) <sup>tt</sup>  |  |
| on for Adding         | Disinfection               |                                   |                      |                         | NSF Approved (Y/N)":                                      | Y   |   | rm Setting (low) <sup>14</sup><br>m Setting (high) <sup>14</sup>   |  |
| Chemical <sup>7</sup> |                            |                                   |                      |                         | 0   | ate of last anti-sir  | shop value leanest  | andre de la constante de la co |  |
| illy Reporti          | 148                        | Note                              | i: Water qua         | ity data repor          | ted on C-ADD form may also be,                            | considered for co   | mpliance purpose  | Carlo Sension  | NA NA  |
| Day                   | Treated Water              |                                   | Chemical<br>red      | Calculated Chemical     |   | (G)usb  | ntured", Resides, U<br>of Continuous (A)  | ulls and Method-<br>ullyzer <sup>in</sup>  | OBM Notes Comments   |
|                       | Volume (gal) <sup>36</sup> | Volume<br>(gal/day) <sup>17</sup> | Weight<br>(lbaktay)" | Used (Bu) <sup>10</sup> | Chemical Dueage (mg/L) <sup>10</sup>                      | a. chiorine<br>residual at end of<br>Segment 1 (mg/L)<br>via Kuntze<br>enelyzer | b. chlorine<br>residual at end of<br>Segment 2 POE<br>(mg/L) via Kuntze<br>agel/zer | G.   | PWS note any equipment breakdown, off-line status,<br>changes in published product or betch mixing day,<br>measured parameters or dosegoe that are dut or<br>largest range, etc. |
| 10000                 | 110021                     | 2.3                               |                      | 2.07                    |   | DG Ø∧   | □G ØA   | □G □A  |  |
| 2                     | 107436                     | 23                                |                      | 2.87                    | 3.1   | 1.68  | 1.41  |  |  |
| 3                     | 115990                     | 23                                |                      | 2.87                    | 3.2   | 1.39  | 1.38  |  |  |
| 4                     | 136606                     | 2.3                               |                      | 2.87                    | 3.0<br>2.6  | 2.07  | 1.48  |  |  |
| 6                     | 115306                     | 2.3                               |                      | 2.87                    | 3.0   | 2.01  | 1.39  |  |  |
| 6                     | 115294                     | 2.3                               |                      | 2.87                    | 3.0   | 1.57  | 1.35  |  |  |
| 7                     | 113051                     | 2.3                               |                      | 2,87                    | 3.0   | 2.14  | 1.28  | _  |  |
| 8                     | 121256                     | 2.3                               |                      | 2.87                    | 2.8   | 1.54  | 1.34  |  |  |
| 8                     | 133900                     | 2.3                               |                      | 2.87                    | 2.8   | 1.50  | 1.36  |  |  |
| 10                    | 127423                     | 2.3                               |                      | 2.87                    | 2.7   | 1.94  | 1.25  |  |  |
| 11                    | 108346                     | 2.3                               |                      | 2.87                    | 32  | 2.13  | 1.12  |  |  |
| 12                    | 116413                     | 2.3                               |                      | 2.87                    | 3.0   | 1.52  | 1.15  |  |  |
| 13                    | 114530                     | 2.3                               |                      | 2.87                    | 3.0   | 1.89  | 1.24  |  |  |
| 14                    | 124210                     | 23                                |                      | 2.87                    | 2.8   | 1.97  | 1.30  |  |  |
| 15                    | 129189                     | 2.3                               |                      | 2:87                    | 27  | 1.71  | 1.30  |  |  |
| 16                    | 126570                     | 2.3                               |                      | 2.87                    | 2.7   | 1.45  | 1.30  |  |  |
| 17                    | 135823                     | 2.3                               |                      | 2.87                    | 2,5   | 1.71  | 1.17  |  |  |
| 18                    | 122676                     | 2.3                               |                      | 2.87                    | 2.8   | 1.74  | 1.10  |  |  |
| 20                    | 134648                     | 2.3                               |                      | 2.87                    | 2.6   | 1.44  | 1.16  |  |  |
| 21                    | 151483                     | 23                                |                      | 2.87                    | 2.3   | 1.48  | 1.08  |  |  |
| 22                    | _                          | 2.3                               |                      | 2.87                    | 23  | 1.13  | 1.49  |  |  |
| 23                    | 156135<br>142513           | 23                                |                      | 2.87                    | 2.2   | 1.02  | 1.22  |  |  |
| 24                    | 113370                     | 23                                |                      | 2.87                    | 2.4   | 1.02  | 1.51  |  |  |
| 26                    | 128707                     | 23                                |                      | 2.87                    | 3.0   | 1.18  | 1.30  |  |  |
| 20                    | 125827                     | 23                                |                      | 2.87                    | 2.7   | 2.75  | 1.01  |  |  |
| 7                     | 111964                     | 26                                |                      | 3.24                    | 2.7   | 0.90  | 1 02  |  |  |
| :8                    | 108196                     | 26                                | - 5                  | 3.24                    | 3.5   | 0.29  | 1.90  |  |  |
| 19                    | 104782                     | 2.6                               |                      | 3,24                    | 3.6   | 1.71  | 1.40  |  |  |
| 0                     | 101638                     | 2.3                               | 0                    | 2.87                    | 3.7   | 2.54  | 1.41  |  |  |
| Y EDG.                |                            |                                   | The same of          |                         | 34 STEEL  | 3.65  | 1.84  |  |  |
| tal                   | 3702839                    | 69.9                              | Inc                  | ficate total # or       | days the residual was off-target to                       | the month ffrom   | Section III Bloods  | Towns  |  |
| esult (daily av       |                            | Ismaneous o                       | andian amb           |                         | ocation (entry-point, before/after filt                   | T/a   | certify under penal<br>irm and the inform<br>to best extent of my                   | ties of lew that I a<br>stion contained he<br>knowledge.   | on the person authorized to fill out this serio is true, accurate and complete to  |
| Ch                    | crine is monitored o       | continuously                      | via a Kurtra         | ansierer Pale           | chlorine residual values provided                         |   |   | rized Person -<br>sture & Date <sup>34</sup> :   | profleen 7   |

20

Submit to your MassDEP Regional Office within 10 days after the reporting month.

Title:



I. PWS INFORMATION:

### Massachusetts Department of Environmental Protection - Drinking Water Program TURBIDITY DATA SHEET FOR FILTERED SYSTEMS

**SWTR** 

| PWSID#:    | 1113003 P  | WS Name: Housatonic Wa                        | ter Works                                      | PWS Town: Great Barrington                                       |
|------------|--|---|--|--|
| Treat      | ment Plant Name:   | Long Pond                                     | Reporting Period → Month:                      |  |
|            | EPORTING   |   |  | June Year: 2020  |
|            | Water Turbidity Measured:  | (shoot and and and                            |  |  |
|            | The state of the s | (check only one)   Combined Filter Effi       | uent ☐ Individual Filter Effluent <sup>1</sup> | ☐ Clearwell ☐ Plant Effluent                                     |
| Fil        | tration  | tional Direct D Alternative                   | Monthly Turbidity (95%) NTU Limit = 0.3        |  |
| Tech       | nology: 🛛 Slow Sa  | and Diatomaceous Earth                        | Monthly Turbidity (95%) NTU Limit = 1          | Max Day Turbidity NTU Limit = 1  Max Day Turbidity NTU Limit = 5 |
|            | Alex Ellered Mark  |   |  |  |
| Day        | Max Filtered Water<br>Turbidity Result <sup>2</sup> (NTU)  | Number of Turbidity Measurements <sup>3</sup> | Number of Turbidity Measurements               | Number of Turbidity Measurements :                               |
|            | 0.043  | 1104  | S Monthly (95%) NTU Limit                      | Max Day NTU Limit <sup>5</sup>                                   |
| 2          | 0.043  | 6   | 6  | 0  |
| 3          | 0.049  | 6   | 6  | 0  |
|            | 0.047  | 6   | 6  | 0  |
| 5          | 0.040  | 6   | 6  | 0  |
| 8          | 0.055  | 6   | 6  | 0  |
| 7          | 0.050  | 6   | 6  | 0  |
| 8          | 0.043  | 6   | 6  | 0  |
| 9          | 0.041  | 6   | 6  | 0  |
| 10         | 0.047  | 6   | 6  | 0  |
|            | 0.048  |   | 6  | 0  |
| 12         | 0.049  | 6   | 6  | 0  |
| 13         | 0.043  | 6   | 6  | 0  |
| 14         | 0.042  | 6   | 6  | 0  |
| 15         | 0.041  | 6   | 6  | 0  |
| 16         | 0.041  | 6   | 6  | 0  |
| 17         | 0.041  | 6   | 6  | 0  |
| 18         | 0.044  | 6   | 6  | 0  |
| 19         | 0.039  | 6   | 6  | 0  |
| 20         | 0.048  | 6   | 6  | 0  |
| 21         | 0.054  | 6   | 6  | 0  |
| 22         | 0.042  | 6   | 6  | 0  |
| 23         | 0.043  | 6   | 6  | 0  |
| 24         | 0.040  | 6   | 6  | 0  |
| 25         | 0.054  | 6   | 6  | 0  |
| 28         | 0,041  | 8   | 6  | 0  |
| 27         | 0.041  |   | 6  | 0  |
| 28         | 0.040  | 6   | 6  | 0  |
| 29         | 0.045  | 6   | 6  | 0  |
| 30         | 0.041  |   | 6  | 0  |
|            | 5.5.1  | 6   | 6  | 0  |
| #2424/17AT |  |   |  |  |
|            | Totals:  | 180   | 180  | % Turbidity Meeting 95% Limit<br>B/A x 100 % = X                 |
|            |  | Α   | 8  | (Enter on SWTR - Form G)   |

- 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 4<sup>th</sup> 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). For continuous monitors count each 4-hour period as 1 measurement. Record the actual turbidity result at the specified interval of time. Do not average turbidity measurements. If DEP approved, 15-minute readings (i.e. 96 readings per day) may be submitted. Filtered turbidity data must be kept on file for DEP review.
- 4. Out of the # of turbidity measurements taken and recorded in the previous column, enter the number of turbidity measurements that were less than or equal to the Monthly (95%)
- 5. If at any at time the filtered turbidity Max Day NTU Limit is exceeded, the DEP must be notified no later than the end of the next business day. For each exceedance, record the turbidity value(s) and date(s) on SWTR Form G

| I certify under penalties of law that I am the person authorized to fill out this form and the information contained | Pres Authorized Signature: |
|--|----------------------------|
| herein is true, accurate and complete to the best extent of my knowledge.  | Pole: -/-/                 |
| in accordance with 310 CMD 22 15(2) 4  | Primary Certified Operator |

in accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MeasDEP Regional Office no leter than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is

| Б | - 2 |
|---|-----|
|   | . 3 |

### Massachusetts Department of Environmental Protection - Drinking Water Program COMPLIANCE DETERMINATION FOR FILTERED SYSTEMS - Monthly Report

SWTR

| THENDRE    |  | Plant Name   |  |  | Long Po  | 04  | - Automorphis   | -0  | Reporti   | ng Period:  | Month:  | N. June                                       | Yes                       | ar: 2020   | 1                                       |
|------------|--|--|--|--|--|---|---|---|---|---|---|---|---------------------------|--|---|
| Lunco      |  | ()指4/图   |  |  |  |   |   | Con Charles   |   |   |   |   |                           |  |   |
| 1.         | Monthly<br>measure                                   | Turbidity (S<br>menis taken  | 65%) NTU i                               | Limit - The<br>th for the filt   | turbidity le   | vel of a syst<br>nology used  | em's filtere  | ed water mu   | st be less  | than or equa  | al to the Me  | ontly Turbid                                  | ty NTU Lis                | mit in at least (  | 95%                                     |
|            | 180  |  | A  |  |  |   |   |   |   | WTR - Form  | F)  |   |                           |  |   |
|            | 180  |  | - B                                      | Total i  | of filtered<br>R - Form F  | water turbic  | lity measu  | rements les   | s than or   | equal to the  | specified lin   | mits for the                                  | filtration te             | chnology used  | 1.                                      |
|            | 100,009  | = (B//   | N) X 100                                 | The po   | ercentage o  | of turbidity m  | easureme  | nts meeting   | the Mont  | thly Turbidity  | 95% NTU   | Limit.  |                           |  |   |
| 2.         | Max D<br>SWTR  | ay NTU Lin   | ilt - The tur<br>n (Tier 2).             | rbidity level  | of a syster  | n's filtered v  | rater must  | at no time  | exceed the  | Max Day N   | TU Limit fo   | or the filtration                             | n technolo                | ogy used, othe   | :/wis                                   |
|            |  | R  | ecord the o                              | tate and tur   | bidity value   | for any me  | asuremen  | ts exceedin   | g the Max   | Day NTU.  | ☑ Chec  | k box if "No                                  | 10"                       |  |   |
|            | Date   |  | duo                                      |  | Reported   |   | 10 3 5  |   |   | Date  | Total Control of the | akae  |                           | Reported to  | DE                                      |
|            |  |  |  | <del> </del>   |  |   |   |   |   |   |   |   | (August)                  | all the state of t | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
|            |  |  |  | <del>                                     </del>   |  |   |   |   | <u> </u>  |   |   |   |                           |  |   |
| For        | each day th  | e Max Dav  | NTU limit i                              | s exceeded   | the DEP  | must be see   | find but the  | and cf.1  | 1   |   | <u> </u>  |   |                           | is not consult   |   |
| 24 h       | nours then it  | is a SWTR  | TT (Tier 1)                              | violation n  | equiring pu  | blic notificat  | ion within 2  | 24 hours.   | next busin  | tess day. SV  | ATR TT VIC  | olation (Tier                                 | 2). If DEP                | is not consult   | ted s                                   |
|            |  |  |  |  |  | - C   |   |   |   |   |   |   |                           |  |   |
| PUIS.      |  | ERFORMAN   |  |  |  |   |   |   |   | 50 TH   | 4.7. 27   |   |                           |  | - 20                                    |
| 12:        | Point-of-E   | ntry Minim   | um Disinfr                               | ctant Resi   | dual Crite   | ria - Residu  | al Disinfec   | tant concen   | tration car   | nnot be <0.2  | mat for a   | oro then 4                                    |                           |  | =                                       |
|            | SWIRTI   | Violation (T   | er 2).                                   | 12.00  |  |   |   |   |   |   |   | Kore them 4                                   | TOUTS.                    |  |   |
|            | Do:  |  |  | Minh   | mum Diali  | fection Re  | sidual at P   | oint-of-En  | ry to Dist  | tribution Sy  | stem  |   | Secure                    | and the second   | 1575                                    |
|            | Day<br>1   | Cl <sub>2</sub> mg/t.  | Day                                      | Cl <sub>2</sub> mg/L   | Day  | Cl <sub>2</sub> mg/L  | Day   | Cl₂ mg/L  | Day   | Cl <sub>2</sub> mg/L  | Day   | Cl <sub>2</sub> mg/L                          | Day                       | Cia mate   |   |
|            | 2  | 1.32   | 6  | 1.20   | 11   | 1.08  | 16  | 1.20  | 21  | 0.96  | <b>'26</b>  | 0.80  | 31                        |  |   |
|            | 3  | 1.30   | 7  | 1.14   | 12   | 1.09  | 17  | 1.12  | 22  | 1.07  | 27  | 1.01  | ATTENDED                  | Measured   |   |
|            | 4  | 1.29   | 8  | 1.26   | 13   | 1.21  | 18  | 1.04  | 23  | 1.20  | 28  | 0.99  | •                         | Free Cl <sub>2</sub>   | 38                                      |
|            |  | 1.32   | 9  | 1.31   | 14   | 1.20  | 19  | 1.02  | 24  | 1.15  | 29  | 1.30  |                           | Total Cl   |   |
| -          | 5  | 1.24   | 10                                       | 1.16   | 15   | 1.21  | 20  | 1.05  | 25  | 0.84  | 30  | _   |                           | 100  |   |
| later      | than by the  | end of the   | is below 0.                              | 2 mg/L in th   | 10 water en  | itering the di  | stribution  | system, the   | supplier o  | of water must   | notify the  |   | 85 5000 5                 | embined Cl <sub>2</sub><br>as possible, bu   | 4.00                                    |
| resto      | red to at lea  | st 0.2 mg/L  | within four                              | hours.   | e supplier i   | or water also   | must noti   | fy the Depa   | riment by   | the end of th   | e next bus  | iness day w                                   | hether or                 | as possible, bu  | el w                                    |
| to(s) R    | losidual <   | Duration   |  |  | SPECKED AND  |   | A TOTAL   |   | - Terre I marks   |   |   |   | - Company                 |  |   |
| 0.2 n      | ng/L   | Level  |  | Date R   | deported to  | DEP   |   |   |   | Residual <  |   | n of Low<br>(hrs.)                            | Date                      | Reported to I  | DEP                                     |
|            | - La - E - C   |  |  |  |  |   |   |   |   | And a series  |   | (mas)   | STATE OF THE PARTY OF     | <b>文型版制</b>  |   |
|            |  |  |  |  |  |   |   |   |   |   |   |   |                           |  |   |
|            |  | V  |  |  |  |   |   | 7   | _   | -   |   |   |                           |  |   |
|            |  |  |  |  |  |   |   |   |   |   |   |   |                           |  |   |
|            | Nightilhu di as                                      | Sunta - 2  |  |  | - 100  |   |   |   |   |   |   |   |                           |  | th 6                                    |
| 2. 8       | Distribution   | System D   | isinfectant                              | Residuat   | Criteria - F   | Residual Dis  | infectant c   | oncentratio   | (V) cann  | ot be undete  | ctable in g   | reater than                                   | 5% of san                 | nom s. ni selos  | utin                                    |
| 2. 8       | Distribution<br>any two con<br>repeat sam            | n System D<br>secutive mo  | isinfectani<br>inths. SW<br>esidual is c | t Residual (<br>TR TT Vicil<br>Setected, ar  | Criteria - Fation (Tier  | Residual Disi<br>2). Chlorine   | infectant c<br>residuals<br>collected   | oncentration must be many   | (V) cann  | ot be undete<br>t the same til  | ctable in g   | reater than<br>ation as total                 | 5% of sam<br>al coliform  | aples in a mon<br>distribution m   |   |
|            | mas <u>16909</u>                                     | ples. If no r  | esidual is o                             | setected, ar   | Criteria - F<br>ation (Tier<br>n HPC sam   | Residual Disi<br>2). Chlorine<br>iple must be   | collected   | and analyz  | ed.   | tino series di  | AND STATE OF  | auon as tou                                   | al coliform               | distribution <u>m</u>  | _                                       |
|            | mas <u>16909</u>                                     | n System D<br>secutive mo<br>ples. If no r<br>C samples              | esidual is o                             | setected, ar   | HPC sam  | ple must be   | collected<br>#  | and analyze HPC sites   | ed.<br>> 500/mL:  |   | # 410 100   | HPC sites:                                    | al coliform               | distribution <u>m</u>  | _                                       |
|            | mas <u>16909</u>                                     | ples. If no r  | taken duri                               | setected, aring month:   | PHPC sam   | ple must be   | collected<br>#  | and analyze HPC sites   | sd.<br>> 500/mL:  | Ar a residuel   | #   | HPC sites:                                    | al coliform               | distribution <u>m</u>  | 8.7                                     |
|            | repeat sam<br>Total # of Hi                          | ples. If no r<br>C samples   | esidual is c                             | detected, aring month: [ # of sites (should to   | HPC sam  | ple must be<br>residual ma<br>e # of sites r  | collected # asuremen  | and analyze HPC sites ts were many  | st.<br>> 500/mL:<br>de, wheth   | er a residual   | # was detec   | HPC sites:                                    | al coliform               | distribution <u>m</u>  | 10.7                                    |
|            | repear sam<br>Fotal # of Hi                          | ples. If no r  | esidual is c                             | detected, aring month: [ # of sites (should to   | HPC sam  | ple must be<br>residual ma<br>e # of sites r  | collected # asuremen  | and analyze HPC sites ts were many  | st.<br>> 500/mL:<br>de, wheth   | Ar a residuel   | # was detec   | HPC sites:                                    | al coliform               | distribution <u>m</u>  |   |
|            | repeat sam<br>Total # of Hi                          | ples. If no r<br>C samples   | esidual is d<br>taken durii              | fetected, ar<br>ing month: [<br># of sites<br>(should t  | where Cl <sub>2</sub> se the same  | residual ma<br>e # of sites r   | ######################################  | and analyze HPC sites its were ma n your mont stead of Cla  | ed.<br>> 500/mL:<br>de, wheth<br>hly RTCR<br>residual r                             | er a residual   | was detection to  | HPC sites:                                    | al coliform               | distribution <u>m</u>  |   |
|            | Fotal # of Hi  | ples. If no r<br>C samples<br>= a                                    | esidual is d                             | # of sites   | where cl <sub>2</sub> the same the same the same the same the same               | residual ma<br>e # of sites r   | # assurement apported or nalyzed in:  | and analyze HPC sites ts were ma n your mont stead of Cla ted and no  | ed.  > 500/mL:  de, whethethe RTCR  residual r  HPC sam.                            | er a residual<br>Cl <sub>2</sub> residual<br>measuremen                           | was detection to  | HPC sites:                                    | al coliform               | distribution <u>m</u>  | 100                                     |
|            | repeat sam  Fotal # of Hi  2  Q  Q                   | ples. If no r C samples = a = b                                      | esidual is d                             | steected, arms month: [  # of sites (should the steech ste | where cl <sub>2</sub> to where Cl <sub>2</sub> to the same the HPC same there no | residual me<br>e # of sites r<br>ples were ar<br>Cl <sub>2</sub> residual   | # asuremen eported or nalyzed in: was detectives was detectives                                   | and analyze HPC sites its were ma it your mont stead of Cla ited and no   | ed. > 500/mL: de, wheth hly RTCR residual r HPC sam. C > 500 C                      | er a residual Cl <sub>2</sub> residual measuremen ple was anal                    | was detec<br>report)<br>ts  | HPC sites:                                    | al coliform               | distribution <u>m</u>  |   |
| later in 1 | Cotal # of Hi  2  Q  Q  Q  the distribut             | ples. If no r C samples  = g  = b  = c  = d                          | taken duris                              | # of sites  | where no   | residual me<br>e # of sites r<br>ples were as<br>Cl <sub>2</sub> residual<br>Cl <sub>2</sub> residual   | collected # assurement eported or nalyzed in: was detect was detect measurem                      | and analyze HPC sites ts were ma n your mont stead of Cla ted and no ted and HP ment was ma                           | ed.  > 500/mL:  de, wheth hity RTCR residual r HPC sam.  C > 500 C  ide and H       | er a residual Cl <sub>2</sub> residual measuremen ple was anal CFU/mL PC > 500 CF | was detected report) ts   | HPC sites                                     | si coliform.<br>≤ 500/mL: | distribution ro  |   |
| later in 1 | Cotal # of Hi  2  Q  Q  Q  the distribut             | ples. If no r C samples  = g  = b  = c  = d                          | taken duris                              | # of sites  | where no   | residual me<br>e # of sites r<br>ples were as<br>Cl <sub>2</sub> residual<br>Cl <sub>2</sub> residual   | collected # assurement eported or nalyzed in: was detect was detect measurem                      | and analyze HPC sites ts were ma n your mont stead of Cla ted and no ted and HP ment was ma                           | ed.  > 500/mL:  de, wheth hity RTCR residual r HPC sam.  C > 500 C  ide and H       | er a residual Cl <sub>2</sub> residual measuremen ple was anal CFU/mL PC > 500 CF | was detected report) ts   | HPC sites                                     | si coliform.<br>≤ 500/mL: | distribution <u>m</u>  |   |
| ater in 1  | Fotal # of HI  2  Q  Q  Q  the distribut of determin | ples. If no r C samples  = g  = b  = c  = d                          | taken duris                              | # of sites  | where no where no ceteria connent. When  | residual me<br>e # of sites r<br>ples were as<br>Cl <sub>2</sub> residual<br>Cl <sub>2</sub> residual   | collected # assurement reported or nalyzed in: was detec was detec measurem tPC) less t eport HPC | and analyze HPC sites ts were man n your mont stead of Cl sted and no sted and HP nent was me than or eque results on | ed.  > 500/mL: de, whethin RTCR residual r HPC sam. C > 500 C ide and H al to 500/m | er a residual Cl <sub>2</sub> residual measuremen ple was anal CFU/mL PC > 500 CF | was detected report) ts   | HPC sites sted or not a detoctable if Report. | s costorm  500/mL:        | distribution ro  |   |
| ater in 1  | Cotal # of Hi  2  Q  Q  Q  the distribut             | ples. If no r C samples  = a  = b  = c  = d  ion system ving complia | taken duris                              | setected, er mg month: for sites for | where no where no ceteria connent. When  | ple must be residual me e # of sites r ples were an Cl <sub>2</sub> residual Cl <sub>2</sub> residual Cl <sub>2</sub> residual centration (f- e analyzed, r | collected # assurement reported or nalyzed in: was detec was detec measurem tPC) less t eport HPC | and analyze HPC sites ts were ma n your mont stead of Cla ted and no ted and HP ment was ma                           | ed.  > 500/mL: de, whethin RTCR residual r HPC sam. C > 500 C ide and H al to 500/m | er a residual Cl <sub>2</sub> residual measuremen ple was anal CFU/mL PC > 500 CF | was detected report) ts   | HPC sites sted or not a detoctable if Report. | s costorm  500/mL:        | ant residual for   |   |

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP)

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

More than 1 Disinfectant / Sampling Point

SWTR H

| Great Barrington   |                               |                    |                        | Insclivation Ratio     | C1.9                |  | THE STATE OF THE S |  |  |  | 1000年 |                   |  |       |  |      |                     | 元は日本になり至っ年 元は日本のは |  |      |  |  |  |  | Organization and Control of the Cont |  |  | The second secon |                    |  |       |                       |  |  | 日本の日本の日本の大学の一大学の日本の大学の一大学の一大学の一大学の一大学の一大学の一大学の一大学の一大学の一大学の   |  |
|--|-------------------------------|--------------------|------------------------|------------------------|---------------------|--|--|--|--|--|---|-------------------|--|-------|--|------|---------------------|-------------------|--|------|--|--|--|--|--|--|--|--|--------------------|--|-------|-----------------------|--|--|--|--|
|  |                               |                    |                        | inactivation Bado SUR! | (CT calo / CT 89,9) | 62.3   | 50.1   | 64.8   | 47.3   | 64.9   | 29.7  | 53.6              | 48.4   | 44.7  | 897  | 40.8 | 0.00                | 011               | 62.7   | 61.4 | 49.4   | 44.7   | 41.6   | CONTRACTOR OF STREET   | 45.1   | 38.2   | 46.7   | 40.1   | 63.0               | 6 29   | A A A | 200                   | 404  | 14.0   | 270  | 0.70   |
| PWS Town:  | Year. 2020                    |                    |                        | Esh                    | 56                  |  |  |  | The state of the s |  |   |                   | SALICAL PROBLEMAN  |       | STATE OF THE PARTY |      | Statute and Charles |                   | The second secon |      |  | Manager And Application of the Person of the |  | CONTRACTOR AND AND ADDRESS OF THE PARTY OF T |  | CHARLESCON, SPANISH  |  | Consideration of the constant  | ACTION OF BUILDING | The KANDA SWILLTEN COUNTY  |       | A. Horse advisor stor | The state of the s | Summing of the State of the  | The second secon |  |
| Vorks  | Reporting Period: Month: June |                    |                        | 5#                     |                     |  |  |  |  | The same of the sa |   |                   | West and the second of the sec |       |  |      | THE REAL PROPERTY.  |                   | O DESCRIPTION OF THE OWNERS OF   |      | The second second second   |  |  |  |  | THE WAR THE STATE OF THE PARTY  |  | SHAPPER PROPERTY OF  |                    |  |       | NAME OF STREET        |  | THE PERSON NAMED IN  |  |  |
| Housetonic Water Works   | orting Period:                |                    | 1 Cr 99 61             | 4th                    |                     | A STATE OF THE PARTY OF THE PAR |  | 1  |  |  |   |                   |  |       | THE PERSON   |      |                     |                   | CHE 127 C. 24  |      | C. Company of the Com | 00 00 00 00 00 00 00 00 00 00 00 00 00   | STATE OF THE PERSON  |  | The same of the sa | Contract of the last of the la |  | Table Confidential   |                    | SEVERAL SERVICE  |       | STATE WAS A STATE OF  |  | STREET, STREET |  | 100 To 10 |
| The state of the s | Rep                           |                    | Sequence (GT only / CT | 3rd                    |                     | No. of the last of |  | The state of the s |  | Should be seen to be s |   | The second second | The Control of the Co |       | (US)   |      | 10-27 App を中かってい    |                   | STOCK THE SECTION OF   |      | Marin 23 ST WARMEN   | S TOTAL DESCRIPTION OF THE PARTY OF THE PART | The state of the s | The Carties of the Ca | The second secon | CACON CONTRACTOR OF THE PERSON | THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWIND TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN | P. Branch Co.  |                    | THE STATE OF THE S |       |                       |  |  |  | THE RESERVE OF THE PARTY OF THE |
| PWS Name:  | Long Pond                     |                    | Disinfectant           | 2nd                    | 42.2                | 40.9   | 42.2   | 34.0   | 44.3   | 30.6   | 20 4  | 1.00              | 2027   | 200.7 | 20,0   | 36.0 | 39.8                | 405               | 36.4   | 37.8 | 38.4   | 27 B   | 20.3   | 24.0   | 27.7   | 28.7   | 000  | 10 E   | 40.0               | 9.00   | 35.5  | 39.5                  | 71.8   | 64.2   | 66.7   | 9.8  |
| 1113003  | ly Name:                      | RTMGI              |                        | 1st                    | 10.1                | 9.2  | 12.6   | 18.4   | 10.6   | 9.1  | 14.8  | 110               | 10.0   | 444   | 1.00   | 13.0 | 8,61                | 12.2              | 16.0   | 11.6 | 14.8   | 13.8   | 13.0   | 404  | 10.5   | 10.0   | 60   | 9.0  | 44.0               | 24.0   | 0.12  | D. C.                 | 3.2  | W. T. B. W. T. P. C. S.  | 20.4   | - X  |
| PWS ID#: 1113003   | Treatment Facility Name:      | IL DALLY REPORTING |                        | Oay                    | Ī                   | 2  | 60   | 4  | 5  | 8  | -   | 8                 | a  | U.    | -  |      |                     | 13                | 14 10  | 15   | 18   | 17   | 18   | 18   | 8  | 21   | 2  | 23   | 76                 | 7 76   | 62    | 27                    | 77   | 97   | 28   | 8  |

68.9 56.5 74.8 87.0

81.5

certify under penalties of tew that I am the person sutferized to fill out this form and the differmation contained herein is true, accurate and complete to the best extent of my

Date: 7.8.202 PWS Authorized Signature: X2000 413-528-1780 Phone #

Email:

Fax: 413-528-3024

Primary Certified Operator

In accordance with 310 CMR 22.15(2), if mailing paper reports, TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the monitoring period, whichever is sooner. Please note: Electronic reporting (eDEP) deadline is the same as above.

To detarmine SUM (CT calc/CT 99.9), add (CT calc/CT 99.9) values from the first disinfectant sequence to the last from SWTR - Form 1.
 The inactivation ratio (CT calc / CT 99.9) is determined before or at the first customer during peak hourly flow and if the SUM (CT calc / CT 99.9)
 A Yes\* response above indicates a SWTR Treatment Technique violation.

|               | mington     |  | □ 5th □ 6th                           |                       |
|---------------|-------------|--|---------------------------------------|-----------------------|
| MAN THE BUILD | Great Be    | Year: 2020   | 3r = 4th                              |                       |
|               | PWS Town:   | Month: June Year: 2020   | ☐ 1st Ø 2nc                           | Mary Andrew           |
|               |             | Month  | int Application.                      | A. Market             |
|               | Nater Works | Reporting Period:  | Sequence of Disinfectant Application: |                       |
|               | Housstonic  | The state of the s | POE) Se                               |                       |
|               |             | ong Pond   | rage tank effluent (i                 | g seer & househy from |
|               | PWS Name:   |  | Segment 2 - sto                       | ments taken durin     |
|               | 1113003     | Treatment Facility Name:   | Disinfectant <sup>1</sup> :           | ING: All measure      |
|               | Wo ILUE     | Treatment F  | _                                     | BAILY REPORT          |

| 793         1117         7.34         18.2         26         40.2         see           773         1104         7.34         18.2         26         40.2         see           773         1104         7.34         18.7         2.6         40.2         see           819         1107         7.33         18.7         2.6         44.3         see           819         1107         7.33         18.7         2.6         44.0         see           819         7.44         7.34         18.8         2.6         30.8         see           640         800         7.34         18.3         2.6         37.7         see           550         87.6         7.34         18.3         2.6         37.7         see           7.35         87.6         18.6         2.3         34.6         see           8.40         8.80         7.34         18.7         2.3         34.6         see           8.41         8.41         8.42         8.42         8.6         8.4         see           8.42         8.42         8.42         8.4         8.4         8.4         8.6           8.42 <th>Day</th> <th>Peak Hourly Flow? (gpm)</th> <th>Disinfectant Concentration<sup>3</sup> C (mol.)</th> <th>Disinfectant Contact Time T (min.)</th> <th>CT Calc</th> <th>FF.</th> <th>Water Temp<sup>6</sup></th> <th>C1,</th> <th>Inactivation Ratio</th> <th>Inactivation Ratio</th>  | Day | Peak Hourly Flow? (gpm)               | Disinfectant Concentration <sup>3</sup> C (mol.) | Disinfectant Contact Time T (min.) | CT Calc | FF.  | Water Temp <sup>6</sup> | C1,               | Inactivation Ratio | Inactivation Ratio |
|--|-----|---------------------------------------|--|------------------------------------|---------|------|-------------------------|-------------------|--------------------|--------------------|
| 123   1,39   1,70   1100   7,34   18.0   256   42.2     134   1,35   256   1100   7,34   18.0   256   42.2     146   1,35   256   1100   7,34   18.7   256   42.2     147   1,35   258   1100   7,34   18.4   256   43.0     157   1,36   258   7,44   7,34   18.8   2.5   39.0     157   1,36   258   7,44   7,34   18.8   2.5   39.0     157   1,36   259   7,34   18.8   2.5   39.0     157   1,36   259   7,34   18.9   2.5   39.0     158   1,30   259   200   7,34   18.9   2.5   39.0     158   1,30   259   250   20.1   2.5   37.0     158   1,30   250   250   20.1   2.5   20.1     158   1,30   250   250   20.1   2.5   20.1     158   1,30   250   20.1   2.5   20.1   2.5   20.1     159   1,30   250   20.0   2.5   20.1   2.5   20.1     150   1,30   250   20.0   2.5   20.1   2.5   20.1     150   1,30   250   20.0   2.5   20.1   2.5   20.1     150   1,30   250   20.0   2.5   20.1   2.5   20.1     150   1,30   250   20.0   2.5   20.1   2.5   20.1     150   1,30   250   20.0   20.0   20.0     150   1,30   250   20.0   20.0   20.0     150   1,30   20.0   20.0   20.0     150   1,30   20.0   20.0   20.0     150   1,30   20.0   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,30   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     150   1,40   20.0   20.0     1,40   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20.0     1,50   20.0   20 |     | 118                                   | 141  | 707                                | 4777    |      |                         |                   | (c) carc (c) 20.3) | 27                 |
| 154   1440   1550   1000   7354   183   250   4429   4429   1440   1550   183   250   4422   4422   1440   1550   183   250   250   4422   1440   1550   2 | 2   | 123                                   | 33   | 8 1                                |         | 8    | 18.0                    | 92                | 42.2               | See Form H         |
| 146         139         6750         1100         7.35         16.3         20         42.2           117         1.35         819         1100         7.33         16.4         25         64.3           117         1.35         819         1107         7.33         16.4         25         64.3           127         1.36         690         873         7.34         16.8         25         64.3           127         1.35         690         873         7.34         16.8         25         64.3           127         1.35         690         873         7.34         16.3         25         64.3           127         1.36         1.35         690         873         7.34         16.3         25         64.3           128         1.30         860         873         7.34         18.9         2.3         84.0           140         1.30         863         860         7.34         18.9         2.3         84.0           140         1.30         863         864         7.34         18.9         2.3         84.0           141         1.30         864         7.34         8.0   | 60  | 124                                   | 1.48   | 100                                | 1003    | N.   | 18.2                    | 28                | 60.9               | See Form M         |
| 1.77   1.38   1640   1640   7.33   1644   250   84.0   164 | P   | 148                                   | 98.  | OC)                                | 1108    | 7.35 | 18.3                    | 28                | 42.2               | sae Form           |
|  |     | 111                                   | 201  | 9229                               | 670     | 7.33 | 18,4                    | 82                | 9,70               | The Party          |
| 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,   |     | 100                                   | 8.   | 849                                | 1107    | 7.33 | 18.7                    | 25                | 8 77               | 10 m 100           |
| 177         134         728         974         734         168         25         381           140         146         640         670         673         156         670         736         168         25         381           157         136         650         673         732         163         24         381           120         1.16         734         673         732         163         23         340           120         1.16         734         163         23         24         381         340           120         1.24         1.25         2.24         2.23         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24         2.24  | ,   | 101                                   | 1.28   | 689                                | 788     | 7.83 | 18.9                    | 38                | 0.00               | see rorm H         |
| 140   145   640   620   7.36   161   26   311   173   173   161   26   311   173   173   161   26   311   173   173   161   173   173   161   26   311   173   173   161   173   173   161   173   1 | -   | 121                                   | 1.34   | 728                                | 874     | 7.55 | #8.8                    | 36                | 2000               | see Form H         |
| 157   1.36   597   613   7.34   19.1   2.0   24   24.0   24.1   24.0   24.1   24.0   24.1   24.0   24.1   24.0   24.1   24.0   24.1   24.0   | 8   | 140                                   | 1.46   | 079                                | 920     | 7.00 | 0.01                    | 67                | 28.1               | see Form H         |
| 127         1.26         7.35         870         7.34         820         2.4         83.7           124         1.12         7.34         821         7.34         18.3         2.4         83.6           124         1.16         7.34         821         7.34         18.7         2.3         83.6           124         1.26         1.26         7.35         1.87         2.3         83.6           140         1.20         6.63         6.90         7.36         20.2         2.3         83.6           151         1.30         6.63         6.90         7.36         20.2         2.3         83.6           164         1.30         6.63         6.90         7.36         20.2         2.3         87.6           171         1.30         6.63         6.90         7.36         20.2         2.3         87.6           174         1.10         6.87         7.34         7.36         20.2         2.7         87.2           174         1.10         6.67         7.34         7.36         2.1         2.2         87.8           1.14         1.17         6.69         6.73         2.3         2.1  | 6   | 157                                   | 1.36   | 697                                | 074     | 007  | 200                     | 97                | 37.6               | see Form H         |
| 124         1.12         7.34         870         7.34         18.3         24         83.6           120         1.16         7.34         613         7.34         18.6         2.3         34.0           120         1.30         640         830         7.36         18.9         2.3         58.8           131         1.30         660         830         7.36         18.9         2.3         57.0           144         1.30         660         830         7.36         20.1         2.3         37.0           145         1.10         663         7.36         7.36         20.5         2.2         27.8           146         1.10         687         608         7.36         20.5         2.2         27.8           148         1.10         687         608         7.36         2.12         2.3         37.8           148         1.0         680         674         7.36         2.12         2.1         34.2           148         1.0         680         674         7.36         2.1         2.1         37.4           149         1.0         680         674         7.36         2.2  | 10  | 121                                   | 1.26   | 264                                | 000     | 3    | 281                     | 24                | 33.7               | See Form H         |
| 120         118         124         781         732         196         23         34.0           124         1.24         752         800         7.34         187         2.23         34.0           134         1.30         6840         850         7.36         20.1         2.3         35.8           154         1.30         683         8.6         7.36         20.2         2.3         37.0           154         1.30         683         8.6         7.36         20.2         2.3         37.0           148         1.10         687         6.0         7.36         20.5         2.2         27.8           148         1.6         616         7.14         7.36         20.5         2.7         27.8           118         1.6         616         7.14         7.35         2.1         27         27.8           118         1.5         5.6         616         7.24         7.24         2.1         27         27.8           118         1.5         5.6         616         7.3         2.2         2.1         27.8         2.1         27.8         2.1         2.1         2.1         2.1   | =   | 124                                   | 1 12   | 707                                | 200     | 1.34 | 18.3                    | 24                | 38.6               | See Form H         |
| 124         1,24         1,24         1,24         1,87         2,23         55,00           140         1,30         640         630         7,36         20,1         2,3         40,05           151         1,30         663         646         7,36         20,2         23         50,06           154         1,30         663         1,60         7,35         20,2         23         5,7,8           174         1,10         687         646         7,35         20,5         27         27,8           173         1,10         687         646         7,35         20,5         27         27,8           173         1,10         687         674         7,35         27,1         27         27,8           173         1,10         687         674         7,35         27,1         27,1         27,8           173         1,10         687         66         865         7,34         22.6         20         43,6           143         1,01         612         626         865         7,34         22.6         16         64,5           143         1,02         1,03         2,34         2,34<   | 12  | 120                                   | 1.45   | 30                                 | 179     | 7.32 | 19.6                    | 23                | 36.0               | See Form H         |
| 446         130         452         830         7.35         189         23         40.6           131         1.30         640         830         7.35         20.1         23         50.4           154         1.30         663         663         7.35         20.5         23         33.6           174         1.17         518         606         7.35         20.5         22         27.16           149         1.16         616         774         7.35         20.5         22         27.16           144         1.16         616         774         7.35         21.2         27         34.2           174         1.60         611         7.34         27.1         27         34.2           182         1.20         611         7.34         22.1         27         35.7           161         1.51         612         626         7.34         22.6         20         35.8           162         1.51         612         7.34         22.6         20         35.8           143         1.01         612         7.34         22.6         20         35.8           143   | 13  | 124                                   | 1 24   | 18/                                | 25      | 734  | 19.7                    | 22                | 38.8               | RAN Form M         |
| 151   1,500   6949   8540   7,385   20,1   2,23   20,4   | 14  | 177                                   | 98   | 797                                | 830     | 7.35 | 18.9                    | 23                | 40.5               | SAR From M         |
| 154   1,30   2603   7,35   2,02   2,3   37,9   1,11   1,11   1,10   5,10   6,00   7,35   2,05   2,2   2,3   2,3   2,4   1,10   1,10   6,00   7,35   2,05   2,2   2,2   2,2   2,4   2,4   1,10 | 15  | 131                                   | 30   | 0.50                               | 3       | 7.86 | 20.1                    | 23                | 36.4               | Ken Form L         |
| 17.0   | 18  | The second second                     | -80  | 6003                               | 808     | 7.35 | 20.2                    | 23                | 37.0               | see Form H         |
| 149         1,10         587         0408         7,35         20.5         22         27.8           148         1,16         616         616         714         7,35         20.5         22         27.8           174         1,06         616         714         7,36         21         27         36.3           174         1,06         615         77         27         21         27         34.2           175         1,26         615         76         724         27.1         27         36.7           161         1,51         566         865         7.34         22.6         20         43.8           143         1,07         612         62         7.34         22.6         20         43.8           143         1,07         612         62         7.34         22.6         20         43.8           143         1,07         612         62         7.35         23.6         18         54.9           144         1,40         63         146         7.40         23.8         18         64.2           109         1,41         670         120         7.41         23.8 <td>=</td> <td>121</td> <td>17</td> <td>590</td> <td>100</td> <td>7.38</td> <td>203</td> <td>23</td> <td>23.4</td> <td>See Form I</td>  | =   | 121                                   | 17   | 590                                | 100     | 7.38 | 203                     | 23                | 23.4               | See Form I         |
| 146         1.16         616         714         7.35         21.2         21         36.3           173         1.69         651         76         7.35         21.2         21         34.2           182         1.49         651         76         7.35         22.1         27         34.2           161         1.22         462         66         8.6         7.32         22.1         20         30.8           162         1.51         566         8.6         7.34         22.1         20         30.8           143         1.01         612         612         62.1         7.34         22.1         20         30.8           143         1.01         612         612         7.34         22.1         10         43.6           134         1.01         612         623         7.36         23.6         18         36.6           114         1.40         623         116         7.40         23.5         18         66.7           109         1.41         870         1220         7.41         23.8         18         66.7           94         1.89         678         7.74         <  | 18  | 694                                   | VF.  | 910                                | 809     | 7.35 | 20.5                    | 22                | 27.8               | see Form H         |
| 173         1,00         5910         714         7.35         212         21         34,2           11/3         1,40         611         784         7.34         211         37,7         37,7           102         1,51         612         612         7.34         27,8         21         37,7           161         1,51         50         612         624         7.34         27,6         20         43,6           143         1,01         612         624         7.34         22,6         19         54,9           134         1,01         612         624         7.36         23,6         18         36,4           127         1,00         7.32         1,34         23,6         18         36,4           127         1,00         7.35         1,34         23,7         18         71,6           114         1,40         823         118         74,0         23,7         18         71,6           109         1,41         870         1250         741         23,7         18         64,2           109         1,54         23,7         18         66,7         66,7         66,7   | 19  | 148                                   | 46   | 1884                               | 8       | 7.35 | 20.8                    | 71                | 30.3               | See Form 64        |
| 173         1,400         650         674         724         211         21         277           182         1.22         482         762         733         216         21         267           161         1.51         566         865         7.34         22 6         20         3.57           143         1.07         612         612         7.34         22 6         20         4.38           143         1.07         612         62         7.34         22 6         20         4.38           143         1.07         612         62         2.36         18         3.65         8.65           143         1.07         612         62         7.36         2.36         18         3.65           141         1.40         63         1.83         7.40         2.37         18         11.6           109         1.41         670         1.20         7.41         2.38         18         6.42           109         1.41         670         1.20         7.41         2.38         18         6.42           1.54         1.54         2.38         18         1.56         6.42 <th< td=""><td>20</td><td>76.5</td><td>90</td><td>615</td><td>714</td><td>7.35</td><td>21.2</td><td>21</td><td>34.2</td><td>see Form M</td></th<>  | 20  | 76.5                                  | 90   | 615                                | 714     | 7.35 | 21.2                    | 21                | 34.2               | see Form M         |
| 152   122   151   156   173   121   121   156,7   15 | 21  | 473                                   | 1 40   | 000                                | 2/4     | 7.24 | 2.11                    | 21                | 77                 | San Form M         |
| 161   1.51   506   865   7.34   22.6   20   30.8   1.55   1.50  | 22  | 182                                   |  | CHI                                | 188     | 7.33 | 21.8                    | 21                | 38.7               | see Form H         |
| 4/23         1.30         700         643.6         73.4         22.6         20         643.6           143         1.01         612         621         7.34         22.1         19         64.9         64.9           134         1.02         623         621         7.35         23.6         18         36.6           127         1.50         7.32         1.38         7.40         23.7         18         71.6           119         1.41         870         1250         7.41         23.8         18         64.2           94         1.39         678         1787         7.45         23.7         18         64.2  | 23  | 181                                   | 1 81   | 700                                | 3       | 7.33 | The second second       | 20                | 30.8               | BBB Form H         |
| 143         1,07         612         1125         7.34         23,1         149         64,0           134         1,07         683         663         7.35         25.5         18         35.5           127         190         7.32         183         7.40         25.7         19         71.6           109         141         1,40         635         116         64.2         11.6           109         141         670         1250         7.41         25.37         18         64.2           109         141         670         1250         17.6         18         64.7  | 24  | 123                                   |  | 9000                               | 800     | 7.78 | 22.6                    | 20                | 43.5               | see Form H         |
| 134         102         683         664         7.35         23.6         18         35.6           127         1.90         73.2         1584         7.45         25.7         19         31.6           114         1.40         803         1187         7.40         25.7         19         17.6           109         1.41         870         1230         7.41         23.8         18         64.2           94         1.84         678         1749         25.7         25.7         25.7         65.7  | 28  | 143                                   | 101  | 640                                | 300     | 7.84 | 22                      | F F 3 (0) F S F   | 64.9               | See Form H         |
| 127         1.50         732         188         25.6         18         38.6           114         1.40         638         4187         7.40         25.7         16         77.6           109         1.41         87.0         1250         7.41         23.8         18         64.2           64         1.84         678         4787         7.45         23.7         20         61.5  | 88  | 131                                   | 102  | 210                                | 200     | 7.35 | 23.6                    | 18                | 35.5               | see Form H         |
| 114         1,40         623         118         7,16           109         1,41         870         1250         7,41         25,37         19         7,16           109         1,41         870         1250         7,41         23,8         18         64,2           64         1,394         670         1787         7,45         23,7         16         61,5   | 77  | 197                                   | 8  | 200                                | 280     | 7.36 | 23.6                    | 18                | 38.6               | H wood east        |
| 109 1.41 870 1230 7.41 23.8 18 66.7 66.7 66.7 7.45 23.7 20 81.5  | 8   | A PART OF THE PERSON                  | 071  | 132                                | 282     | 7.40 | 23.7                    | 18                | 71.6               | see Form H         |
| 94 1.84 678 1.50 1.50 1.87 2.5.7 2.0 1.8.5   | 83  | 108                                   | 1.41   | 620                                | 2000    | 7.40 | 23.9                    | Section 8 Married | 84.2               | H mud 899          |
| 7. A. S.   | 30  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 184  | 0/8                                | 200     | 141  | 23.8                    | 18                | 66.7               | See Forn H         |
|  |     |                                       |  | 10 TO THE REAL PROPERTY.           |         | 7.63 | 23.7                    | 20                | 01.6               | Sée Farm H         |

1.Use a separate from for each distribucional and sequence position, a g "ozonol" or "CiO<sub>2/3</sub>". If more than one distribucion is sampling point, you must also complete SWTR Form H and calculate the cummulative inscription ratio of the commission of the sequence position, as any instant.

3. The restaul distribucion control sequence is the sequence of the sequence

floatily whose paralles of law that I am the peralles of law that I am the peralles of law that it is the source peralles from and the law that it is the source peralles from and the law that it is accordance with 310 CMR 22.15(2), if mailing paper reports. TWO copies of this report must be received by your Mass DEP Regional Office no later than 10 days after the end of the month in which the results are

Title: Primary Certified Operator

Email: housetonicwater@gmail.com

### Massachusetts Department of Environmental Protection - Drinking Water Program CT DETERMINATION FOR FILTERED SYSTEMS

| Ī                 |                         |  | 1                     |                | °C                                     | T    |            | 1          | T          | T          | I                   | J          | T          | T          |                                 |          | T                | T           | 1  | T          | T           | T               | Т  | ī           |            | Г                          |  |  |            | Г   | u.         | Г                           | 9              | Т          | Т          |
|-------------------|-------------------------|--|-----------------------|----------------|--|------|------------|------------|------------|------------|---------------------|------------|------------|------------|---------------------------------|----------|------------------|-------------|--|------------|-------------|-----------------|--|-------------|------------|----------------------------|--|--|------------|---|------------|-----------------------------|----------------|------------|------------|
|                   |                         |  |                       |                | Inactivation Ratio®                    |      | 800 FORM H | See Form H | See Form H | See Form H | 899 FORTH           | BBB FORM H | Ree Form H | See Form H | See Form H                      | H LLOW H | See FORM H       | See Form II | H HILD LAND  | Red Form H | and Form Li | see Form H      | Bee Form M   | See Form H  | Bee Form H | See Form H                 | eee Form H   | See Form H   | See Form H | see Form H  | Bee Form M | See Form M                  | See Form H     | see Form H | Gon Form M |
| 0.0621705         |                         |  |                       |                | Inactivation Ratio                     | 10.0 | 10.1       | 200        | 46.4       | ***        | 0.00                | 44.6       | 44.0       | 400        | 6.01                            | 13.6     | 9                | 433         | 48.0   | 11.6       | 11.3        | 13.8            | 13.0   | 10.9        | 10.6       | 10.0                       | 8.2  | 9.6  | 11,0       | 21.0  | 8.6        | 3.2                         | AND THE PERSON | 20.4       | 26.8       |
| 200               | Year. 2020              |  |                       |                | CT,                                    | 23   | 2          | 25         | 24         | 33         | 20                  | 2.0        | 21         | 21         | a                               | 22       | 30               | 21          | 21   | 20         | 41          | 50              | 8  | 9           | 00         | 11                         | Sales Section 1  | 0  | 92         | 18  | 10         | 14                          | 18             | 18         | N.         |
| ] PWS Town        | June                    | ☑ 1st ☐ 2m   |                       |                | Water Temp <sup>8</sup> (°C)           | 181  | 140        | 180        | 18.2       | 18.4       | 18.6                | 187        | 181        | 19.2       | 182                             | 19.6     | 19.6             | 198         | 20.0   | 20.0       | 20.1        | 202             | 20.4   | 207         | 20.8       | 717                        | 770  | 977  | 183        | 23.4  | 23.4       | 23.1                        | 28.0           | 23.2       | 23.2       |
|                   | Month.                  | tant Application   | THE REAL PROPERTY.    |                | PH.                                    | 6.92 | 692        | 693        | 6.93       | 689        | 6.89                | 691        | 08.6       | 689        | 6.80                            | 90       | 1979 68.B) Sales | 691         | 6.91   | 069        | 6.89        | 6.89            | 6.80   | 200         | 200        | 000                        | 000  | 800  | 500        | 200   | 6.84       | 888                         | 02.20          | 697        | -N 107     |
| fonic Water Works | Reporting Period        | Sequence of Disinfectant Application                               |                       |                | CT Calc<br>(=C x T)                    | 236  | 208        | 310        | 321        | 230        | THE PERSON NAMED IN | 342        | 201 201    | 228        | THE R. P. LEWIS CO. LEWIS B. P. | 285      | Section 1        | 287         | が<br>対<br>に<br>は<br>に<br>に<br>に<br>に<br>に<br>に<br>に<br>に<br>に<br>に<br>に<br>に<br>に  | 228        | 22          | 275             | - 10 To 10 T |             | 487        | ACTO COST #40 INTRODUCTION | SERVICE STREET, STREET | The Angles of the Part of the Control of the Contro | , set      | 760   | 100        | 8                           | 476            | 210        | 200        |
| House             | Long Pond               | Disinfectant! Segment 1 - post clearwell (tap in 200-ft long pipe) | Pank trounty flow.    |                | Dismfectant Contact Time*<br>T (min.)  | 140  | 149        | 150        | 160        | 151        | 136                 | 160        | 161        | 152        | 181                             | 138      |                  | 136         | 80   | 137        | 101         | 101             | 142  | 430         | 148        | 148                        | 144  | The second secon | 143        | -   | 450        | 88                          | 148            | 199        |            |
| PWS Name          |                         | Segment 1 - post clear   | Surgents taken during | Disinfectant   | Concentration <sup>3</sup><br>C (mg/L) | 168  | 1.30       | 207        | 201        | 15/        | 1.48                | 214        | 20         | 90         | Z SALES PROPERTY.               | 2 13     | 1.02             | 88          | THE PERSON NAMED IN COLUMN NAM | **         | 174         | March Section 7 | 1 44   | September 1 | 1.13       | 1,02                       | 1 02   | Control 1.48 Gentlement  | 2.75       | 0.60  | 0.29       | The second of the second of | 254            | 3.65       |            |
| 1113003           | Treatment Facility Name | Disimfectant <sup>1</sup> .  | REPORTING AT MA       | Book He. d. C. | (mdb)                                  | 152  | 107        | 75         | 200        | 76         | 70                  | 761        | 780        | 761        | X                               | 761      | 8                | 700         | 463  | 162        | 152         | 162             | 152  | 152         | 152        | 162                        | 152  | 162  | 152        | 162   | 152        | 162                         | 152            | 162        |            |
| PWS ID#           | Trea                    |  | II PANNE              |                | Day                                    | - (  |            |            | e v        |            |                     |            | 9          | 40         |                                 | 12       | 12               | 1           | - 2  | 18         | 17          | 18              | 19   | Q           | 21         | 2                          | 23   | 75   | 52         | 19 <b>28</b> 19 19 19 19 19 19 19 19 19 19 19 19 19 | 27         | 28                          | 53             | 30         | -          |

Notes:

1 Ube a separate form for each distributant/kampling point. Enter distributant and sequence position, e.g. "ocone!!" or "CID<sub>2</sub>/3". If more than one distributant kampling point, you must sho complete SWTR form H and calculate the cummulative hardward more than the distributant of the distributant of the distributant of the worder before or at the first outstance must be measured each day during peak hourly flow.

1 The relative distributant contact times to distribute the resch day during peak hourly flow.

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1 The distributant contact times(s) ("T) must be desermined for each day during peak hourly flow.

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1 The distributant contact times(s) ("T) must be desermined for each day during peak hourly flow.

is increased.

If the system care the choicin, he pi of the deshiboted vater must be measured at least once par day at each otherine residual dishilacient concentration sampling point during peak hourly flow.

The importance of the dishifeded vater must be measured at least once par day at each residual dishilacient concentration sampling point during peak hourly flow.

Whe importance of the dishifeded vater must be measured at least once par day at each residual dishilacient concentration sampling point during peak hourly flow.

When the importance above indication or at the first customer during peak hourly and if the ratio is < 1.0, the 99 by Glandio importance or experience above indication or at the first customer during peak hourly flow.

When the importance above indication is a SWITR. The athering which the flow of the first customer during peak hourly flow.

Phone #: PWS Authorized Signature:

Date: 7.8.202C 413-528-3024 Fax:

Title: Primary Certified Operator Email: houseteriowster@gmail.com

In accordance with 310 CMR 22.15(2), if mailing paper reports. TWO copies of this report must be received by your MassDEP Regional Office no later than 10 days after the end of the month in which the results are



# Massachusetts Department of Environmental Protection - Drinking Water Program CHLORINE/CHLORAMINES - MONTHLY REPORT

|   | 0   |   | Review Comments:   | Г   | ☐ Accepted ☐Disapproved  | status   | DEP Review Status   |                              |
|---|---|---|--|---|--|--|---|------------------------------|
| 1.8.4050  | No.   |   |  |   |  | The state of the s |   |                              |
| Ph.   | re and Date:  | Primary Certified Operator Signature and Date:                      | Primary C  | tained herein is                                  | l termy under penalties of law that I am the person authorized to fill out this form and the information confisined havein is<br>true, accurate and complete to the best extent of my knowledge.   | certify under paralles of law that I am the person authorized to true, accurate and complete to the best extend of my knowledge.   | penalities of law that I<br>and complete to the I                                 | true, accurate               |
| In Community CMR 27 19(2), if making paper reports. IMO copies of this report must be received by your MeastDEP Regional Office no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the results are received by no later than 10 days after the end of the month in which the received by no later than 10 days after the end of the month in which the received by no later than 10 days after the end of the month in which the received by no later than 10 days after the end of the month in which the received by no later than 10 days after the end of the month in which the received by | rine Result of All Se<br>d of the month in which th | Average Chlorine Result storthan 10 days after the end of the month | or Month <sup>5</sup> : 2 sDEP Regional Office no I        | Collected for<br>wed by your Mas<br>ame as above. | Total # of Samples Collected for Month! in accordance with 310 CMR 22 15(2), if making paper reports. <u>TWO</u> copies of this report must be received by your MassDEP Region of the monitoring period, whichever is sooner. Please note: Electronic reporting (eOEP) deedine is the same as above.   | ING:<br>(2), if mailing paper rep<br>is sooner. Please note  | In eccordance with 310 CMR 22 15(2), if of the monitoring period, whichever is so | in accordance of the monitor |
| dations.  | dual samples in your calcu                          | or plant tap (PT) chlorine resk                                     | T include raw water (RW) o                                 | amples, DO NO                                     | I COLEDE LANCET PERSONNEL PROPERTY OF A VENEZUE BETTER PROPERTY SITES AND INCLUDE THE WATER (RW) OF PLANTED PROPERTY OF PROPER | a celectable capitine i  |   |                              |
| P).  Within the distribution system during the  | are sampled. Record ND similed by DEP).             | r SS-Special Sample (as dete  | et, AR-Additional Repeat, o                                | wnstream Repea<br>at number is gre                | Sample Type: RS-Routine Distribution Sample. RO-Onginal Site Repeat, UR-Upstraim Repeat, DR-Downstream Repeat, AR-Additional Repeat, or SS-Special Sample (as determined by DEP).  *AB <u>INSTREGUTION</u> samples taken and analyzed shall be included in determining compliance, even if that number is greater than the minimum required. If you collect repeat coloring samples within the distribution system during the  | tion Sampte, RO-Ongin<br>and analyzed shall be   | : RS-Routine Distribu<br><u>LTION</u> samptes taken                               | Sample Type                  |
|   | iste SWTR Form                                      | port form and on the appropr  | Bacteriological Monthly Reand location in the distribution | rted on the DEP                                   | OW IX systems: HPC must be collected at distribution sites with zero chlorine residual and results reported on the DEP Bacteriological Monthly Report form and on the appropriate SWTR Form Collection and Analysis: Chlorine residual shall be measured in the field (immediately upon collection) at the same time and location in the distribution system as a total collection.  | ected at distribution sit  | ma; HPC must be coll<br>id Analysis: Chlorine r                                   | Collection ar                |
|   |   | m Samoloo Plan  | n on your DEP Total Colifor                                | ame information                                   | DEP Sample Type, Location Codes, and DEP Approved Sample Site Location must correspond to the same information on your DEP Total Coations Samples Dan  | #, and DEP Approved :  | Type, Location Code   | OEP Sample                   |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   |                              |
|   |   |   |  |   |  |  |   | T                            |
| Tim Vreeland  | 14:40   | 0/1//2020   | 5.5  |   |  |  |   |                              |
| Tim Vreeland  |   | 0/7//2020   |  |   |  | Broakside School   | 200   | RS                           |
|   |   |   |  |   |  | Pleasant and Main  | 8   | RS                           |
| Tim Vreeland  | 14:26   | 6/17/2020   | 1.10   |   |  | Form of Emry   | 27  | ā                            |
|   |   |   |  |   |  |  | 7   | 9                            |
| COLLECTED AND ANALYZED BY:  | TIME  | DATE  | RESULT <sup>2</sup>  |   | DEP Approved SAMPLE LOCATION   | DEP  | DEP Location<br>Code #1   | Sample<br>Type 14            |
|   | D ANALYSIS <sup>3</sup> :                           | COLLECTION AND ANALYSIS <sup>3</sup> :                              | CHLORINE   |   | DEP APPROVED SAMPLE SITE INFORMATION   | PROVED SAM   | DEP AF  |                              |
|   |   |   |  |   |  |  | Notes:  | Z.                           |
| Б □ G В Н 1 ASTM_D1263-   |   | hod: SM 4500-CI   | Analytical Method:   | Combined Chlorine                                 | ☐Total Chlorine ☐ombine  | ☑ Free Chlorine  | Type Measured:  | Type                         |
|   | mplete this section                                 | oring plan to help co   | nd/or DBPR monitc  | ling Plan aı                                      | II. ANALYTICAL INFORMATION: Refer to your MassDEP Coliform Sampling Plan and/or DBPR monitoring plan to help complete this section.  | MATION: Refer t  | YTICAL INFOR  | II. ANAL                     |
| Class: ☑OM ☐JTNC ☐NC  | Great Barrington                                    | City/Town: Gi   | er Works   | Housatonic Water Works                            | PWS Name: Hous   | 1113003  | PWS ID #: 111   | PW                           |
|   |   |   |  | 2020  | YEAR:  | June   | HTNOM.  | 3                            |
|   |   |   |  |   |  |  | I. PWS INFORMATION:   | I. PWS                       |
|   |   |   |  |   |  |  |   |                              |



### James J. Mercer < housatonicwater@gmail.com>

### RE: Report

1 message

Richard Brown < RBrown@cornwellinc.com>

Mon, Oct 26, 2020 at 4:31 PM

To: "James J. Mercer" <housatonicwater@gmail.com>, "David A. Cornwell" <DCornwell@cornwellinc.com>,

"wcs.llc@comcast.net" <wcs.llc@comcast.net>, Savannah Mika <SMika@cornwellinc.com>

I will be completing it this week

Richard A. Brown, PE

Cornwell Engineering Group, Inc.

rbrown@cornwellinc.com

757-873-1534 x224 (757-288-7338 cell)

From: James J. Mercer < housatonicwater@gmail.com>

**Sent:** Monday, October 26, 2020 3:57 PM

To: David A. Cornwell <DCornwell@cornwellinc.com>; wcs.llc@comcast.net; Richard Brown

<RBrown@cornwellinc.com>; Savannah Mika <SMika@cornwellinc.com>

Subject: Report

Hi Dave

I understand that Rich got off our comments on the report. I'm really anxious to get this into DEP do you think it will be completed this week?

Jim

80 Maple Avenue, Suite1

Great Barrington, Massachusetts 01230

(413) 528-1780 phone (413) 528-3024 fax www.housatonicwater.com

The information contained in this email message may be privileged, confidential, and protected from disclosure. Any unauthorized use, printing, copying, disclosure, dissemination of or reliance upon this communication by persons other than the intended recipient may be subject to legal restriction or sanction. If you think that



James J. Mercer < housatonicwater@gmail.com >

### **Fwd: Cornwell Report**

1 message

James J. Mercer < housatonicwater@gmail.com >

Tue, Nov 3, 2020 at 10:42 AM

To: "David A. Cornwell" <DCornwell@cornwellinc.com>, Richard Brown <RBrown@cornwellinc.com>, Savannah Mika

<SMika@cornwellinc.com>

Bcc: Rich Gullick <wcs.llc@comcast.net>

FYI



80 Maple Avenue, Suite1 Great Barrington, Massachusetts 01230 (413) 528-1780 phone (413) 528-3024 fax

www.housatonicwater.com

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From: James J. Mercer < housatonicwater@gmail.com >

Date: Tue, Nov 3, 2020 at 10:41 AM

Subject: Cornwell Report

To: Doherty, Deirdre (DEP) <deirdre.doherty@state.ma.us>, Harrington, Brian D (DEP) <br/>
state.ma. us>, Paine, Douglas (DEP) <douglas.paine@state.ma.us>, Rebecca Jurczyk <rjurczyk@townofgb.org>, Jim Ericson <ericson@lenard-eng.com>, Rich Gullick <wcs.llc@comcast.net>, Cox, Jr., Robert D. <RCOX@bowditch.com> Cc: Mark Pruhenski <mpre>MPruhenski@townofgb.org>

Dear Ms. Doherty

Please see the attached correspondence and report.

Thank you.

Jim Mercer



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### 2 attachments



DEP Letter 11032020.pdf 242K



Cornwell Full Report.pdf 567K

November 3, 2020

VIA EMAIL: deirdre.doherty@state.ma.us

Ms. Deirdre Doherty
Drinking Water/Municipal Services Chief
Bureau of Water Resources
Massachusetts Department of Environmental Protection (MassDEP)
436 Dwight Street
Springfield, MA 01103

RE: Housatonic Water Works Company PWSID #1113003 Cornwell Report

Dear Ms. Doherty:

Attached is the report that Cornwell Engineering Group prepared.

It appears that there are two separate causes of the colored water issues:

- Suspended particles from hydraulic disturbances: Roily water observations originate
  during water main flushing, hydrant testing, and when water is used to battle fires. At
  these times there are high volumes of water moving through the distribution system.
  During these events sediment (iron rust) in the pipes gets stirred up. These disturbances
  often result in a turbid, darker colored water with suspended particles.
- Clear yellow color from manganese: In both summer 2018 and summer 2020, some
  parts of the distribution system experienced a clear (transparent) water with a light
  yellow color. Based on Cornwell's recent data analysis, we now believe that yellow water
  was caused by manganese in the treated water. At all times, the low level of manganese
  was of no health risk.

The report identifies manganese as the primary source of the colored water and the company is developing a plan to remediate the situation in a timely manner.

Sincerely,

James J. Mercer

James of Merca

### Enclosure

cc:

Brian Harrington, MassDEP (e-copy)
Douglas Paine, MassDEP (e-copy)
Rebecca Jurczyk, GB BOH (e-copy)
James Ericson, P.E., Lenard Engineering, Inc. (e-copy)
Richard W. Gullick, PhD, Water Compliance Solutions, LLC (e-copy)
Robert D. Cox, Jr., Esq., Bowditch & Dewey, LLC (e-copy)



October 29, 2020 Housatonic Water Works Memorandum No. 15400-002

Subject: Desktop Study - Colored Water and Corrosion Assessment

Housatonic Water Works Company (HWWC) has tasked Cornwell Engineering Group, Inc. (Cornwell) with investigating the colored water events that seasonally occur in their system (typically during warner months), as well as the corrosivity of the water. The following memorandum discusses and summarizes the HWWC water quality characteristics and their implications on solubility or precipitation of hardness, iron, manganese, lead, or copper, and provides direction for an action plan to resolve the issues.

### SYSTEM DESCRIPTION

The water source for the HWWC system is surface water from Long Pond. Treatment consists of slow sand filtration, addition of sodium hypochlorite, and chlorine contact as depicted in the treatment schematic in Figure 1. Current average daily production is 0.11 MG.

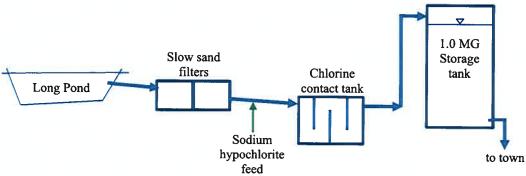


Figure 1 HWWC treatment scnematic

Characteristics of the water mains and service lines, as reported in the December 2016 Desktop Study Report (Lenard 2016), are summarized in Table 1 and in the following items:

• Water main upgrades were initiated in the 1990s and included about 14,000 LF (mostly ductile iron and polyethylene as per Table 1), and most (if not all) of the remaining system pipes are >100 years old and are made of cast iron or steel.

- The characteristics of the "steel" pipe are not reported by Lenard (2016), but the data suggests that > 80 percent of the pipes are unlined cast iron or "steel" pipes >100 years old
- There are some asbestos cement (transite) pipes in the system. Information on sizes has not been reported, but these pipes are typically used for larger mains in a water system.
- No lead service lines have been identified in the system over the past ~35 years. Only a
  few lead goosenecks were encountered during that time, and they were removed. No other
  lead goosenecks are currently known to exist, and HWWC policy is to promptly remove
  any that may be found in the future.
- In addition to company-owned mains, there are approximately ten streets that are privately owned with privately owned water mains. These are typically steel lines, over 50 years old, and don't have hydrants or blowoffs on the end to flush out stale or dirty water. This situation may impact water quality in these areas.

Table 1 HWWC Water Mains and Service Lines (Lenard 2016)

| $\mathbf{W}$               | ater Mains       |                  |
|----------------------------|------------------|------------------|
| Material                   | Lineal Feet (LF) | Percent of Total |
| Cast iron                  | 64,497           | 54.3%            |
| Steel†                     | 34,734           | 29.2%            |
| Ductile iron               | 14,671           | 12.3%            |
| Transite (asbestos cement) | 4,552            | 3.8%             |
| Polyethylene (PE)          | 380              | 0.3%             |
| Total                      | 118,834          | 100.0%           |
| Se                         | rvice Lines      |                  |
| Material                   | Number           | Percent of Total |

| Material     | Number | Percent of Total |  |  |
|--------------|--------|------------------|--|--|
| Galvanized   | 784    | 91.6%            |  |  |
| Copper       | 71     | 8.3%             |  |  |
| Ductile Iron | 1      | 0.1%             |  |  |
| Total        | 856    | 100%             |  |  |

### HWWC WATER QUALITY - ENTRY POINT AND DISTRIBUTION SYSTEM

Historical data are summarized in Table 2, with data from the distribution system separated by low color (<15 PCU) and high color (>15 PCU). Data for the distribution system includes data from August 22, 2018 through March 16, 2020 plus data from additional five sampling events in August 2020. Data for point of entry (POE) for pH from the WTP monitoring data was only used from July 27, 2020 through most recent data provided (September 7, 2020) due to pH probe calibration issues (Figure 5). Additional data at POE was also collected and measured by an independent laboratory, similar to the distribution sites. This additional POE data included 5 sampling events, one from August 22, 2018 and four from recent sampling events in August of 2020. Therefore, POE data may not be representative of conditions observed during the colder months. Calcium hardness at POE was reported in the 2016 desktop corrosion control treatment (CCT) study (Lenard 2016), and was assumed to be similar at the distribution sites for calculated values. Calculated parameters such as Larson and Skold Index (LSK), calcium carbonate precipitation potential (CCPP), dissolved inorganic carbon (DIC), and chloride to sulfate mass ratio (CSMR) are also included. Calculations for CCPP and DIC were performed assuming a water temperature of 20°C.

Since colored water is a main concern in the HWWC system, Table 2 separates distribution data by color above or below the secondary maximum contaminant level (SMCL) of 15 PCU. Note that colored water data are still limited.

Most of the other parameters and constituents are about the same at the POE and in the distribution system, and except for color and manganese the results during high color events (>15 PCU) are about the same as on low color events (<15 PCU). On dates when the color is >15 PCU, the manganese is higher than on the dates when the color is <15 PCU. More than half of the manganese results in the distribution system samples with color <15 PCU were below the detection limit (<0.002 mg/L): 86 of 155 samples, and 145 of the 155 samples were <0.010 mg/L. For distribution samples >15 PCU, no manganese values were below the detection limit. When the color was  $\geq$ 30 PCU the manganese was  $\geq$ 0.09 mg/L. Further discussion on manganese and colored water is included in the next section.

Iron, manganese, and total color data are evaluated in the discussion below, followed by a discussion of pH, lead and copper, use of polyphosphate, hardness precipitation, and free chlorine residuals.

Table 2 Housatonic Water Works Water Quality (2018 – 2020)

| Parameter/Constituent                      | POE         | DS             | DS             |
|--|-------------|----------------|----------------|
|  | Median, n=5 | (color>15 PCU) | (color<15 PCU) |
|  |             | Median, n=6    | Median, n=155  |
| pH*  | 7.3         | 7.7            | 7.8            |
| Total Alkalinity (mg/L CaCO <sub>3</sub> ) | 80          | 78             | 80             |
| Calcium Hardness (mg/L CaCO <sub>3</sub> ) | 48          |                |                |
| Total Hardness (mg/L CaCO <sub>3</sub> )   |             |                |                |
| Total Iron (mg/L)                          | < 0.05      | 0.093          | < 0.05         |
| Total Manganese (mg/L)                     | 0.086       | 0.018          | < 0.002        |
| Chloride (mg/L)                            | 14.2        | 14.3           | 14.7           |
| Sulfate (mg/L)                             | <5          | <5             | <5             |
| Free Chlorine Residual (mg/L)              | 1.13        | 0.45           | 0.35           |
| Apparent color (PCU) †                     | 20          | 20             | 0              |
| Total Dissolved Solids (mg/L)              | 107         | 113            | 105            |
| DIC (mg/L as C)*                           | 21.9        | 19.8           | 19.9           |
| LSK  | < 0.32      | < 0.52         | < 0.32         |
| CCPP (mg/L CaCO <sub>3</sub> )             | -18.5       |                | 0.52           |
| Saturation pH                              | 8.16        |                |                |
| LSI  | -0.96       |                |                |
| CSMR (mg/mg)                               | >2.8        | >2.8           | >2.9           |

<sup>\* =</sup> the POE pH data used to determine the median included five samples from an independent certified laboratory, plus one value per day from the treatment plant's analyzer from 7/27/20 through 9/27/20. The DIC was calculated using paired pH and alkalinity data on dates when alkalinity was also measured.

† = APHA platinum/cobalt (Pt/Co) color units, unfiltered (ASTM 2019)

DIC = Dissolved inorganic carbon (also known as "total carbonate")

LSK = Larson-Skold Index

CCPP = Calcium carbonate precipitation potential ("+" = precipitation, "-" = dissolution)

LSI = Langelier Saturation Index
CSMR = Chloride to sulfate mass ratio

### **IRON AND MANGANESE**

Results from Table 2 show that iron was consistently below the SMCL, even during high color events (>15 PCU). Previously colored water complaints were thought by HWWC to be from iron corrosion due to the aging iron pipes in the system, but none of the iron results reported, including samples with total color 40 to 50 PCU, exceeded the 0.3 mg/L iron SMCL.

The Larson-Skold Index (LSK) is used to describe the corrosivity of water towards iron, although it does not account for all iron corrosion mechanisms. Table 3 shows the interpretation with respect

<sup>&</sup>lt;sup>1</sup> "True" color (filtered water sample) is measured the same way as apparent color (unfiltered water sample), except with suspended material (e.g., turbidity) removed by filtration before determination of "true" color.

to potential for iron corrosion associated with calculated LSK values (Leitz and Guerra 2013). The index is calculated using the ratio of equivalent weight of chloride and sulfate ions to the equivalent weight of bicarbonate and carbonate ions, shown in the following equation.

LSK= 
$$\frac{(Cl^2 + SO_4^{2-})}{(HCO_3^2 + CO_3^{2-})} = \frac{\text{eq. weight of chloride} + \text{eq. weight of sulfate}}{\text{eq. weight of bicarbonate and carbonate}}$$

**Table 3 Larson-Skold Index** 

(Source: Leitz and Guerra 2013)

| LSK Value       | Significance   |  |  |  |  |  |  |
|-----------------|--|--|--|--|--|--|--|
| < 0.8           | Chloride and sulfate concentrations will not interfere with natural film formation                 |  |  |  |  |  |  |
| 0.8 < LSK < 1.2 | Chloride and sulfate concentrations may interfere with natural film formation; corrosion may occur |  |  |  |  |  |  |
| > 1.2           | High corrosion rates are anticipated   |  |  |  |  |  |  |

Calculations based on the recent sampling, using POE alkalinity of 80 mg/L CaCO<sub>3</sub> as an estimate for the sum of carbonate and bicarbonate, a chloride of 14.2 mg/L, and sulfate as the detection limit of 5 mg/L, gives a Larson-Skold Index of about <0.32 (as shown in equation below)<sup>2</sup>. As shown in Table 3, an LSK of 0.3 suggests the water quality conditions are not conducive to iron corrosion. This is supported by the low measured iron levels in the distribution system, as levels are historically below the SMCL even during high color sampling events.

$$LSK = \frac{(Cl^{2} + SO_{4}^{2})}{(HCO_{3}^{2} + CO_{3}^{2})} \approx \frac{\left(\frac{14.2 \text{ mg/L}}{35.45 \text{ mg/meq}}\right) + \left(\frac{<5 \text{ mg/L}}{48 \text{ mg/meq}}\right)}{\left(\frac{80 \text{ mg/L as CaCO}_{3}}{50 \text{ mg/meq}}\right)} = <0.32$$

Figure 2 shows manganese in the raw water, at point of entry, and in the distribution system from Summer 2018 through Summer 2020. Manganese in the distribution system varies seasonally, with higher levels in the warmer months. Manganese exceeds the SMCL at the POE in multiple measurements in August 2018 and August 2020. One measurement in the distribution system in August 2018 is at the SMCL and two exceed the SMCL in August 2020. There are no data available for the colder months for manganese in the raw water and the point of entry.

**CORNWELL ENGINEERING GROUP** 

<sup>&</sup>lt;sup>2</sup> The sum of the equivalent weights of carbonate and bicarbonate at normal pH of drinking water can be approximated as the alkalinity in mg/L as CaCO<sub>3</sub> divided by a factor of 50 mg CaCO<sub>3</sub> per meg

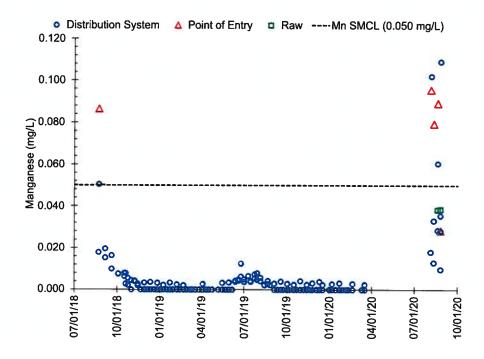


Figure 2 Manganese in raw, point of entry, and distribution system water

The higher manganese levels in the summer correspond to the same time period when most colored water complaints are received. Figure 3 compares manganese versus total color in samples where both were analyzed (see exception discussed later in this paragraph). This figure shows that events with manganese above the SMCL occur when there is high color in the same sample.

Figure 4 shows the same type of plot but with iron instead of manganese. This figure shows that even during high color events, the iron levels are below the SMCL of 0.3 mg/L. There does not appear to be any trend between high color events and high iron.

The results from these two figures for iron and manganese versus color show that:

- a) iron never occurred above the SMCL, even during periods of total color up to 50 PCU
- b) manganese increased on dates that higher total color was measured
- c) for this particular limited data set of colored-water samples, manganese and color in the distribution system are similar to, or lower than, levels observed at the POE, suggesting that for these specific distribution system locations the color and manganese are not increasing to levels that are higher than at the entry point.

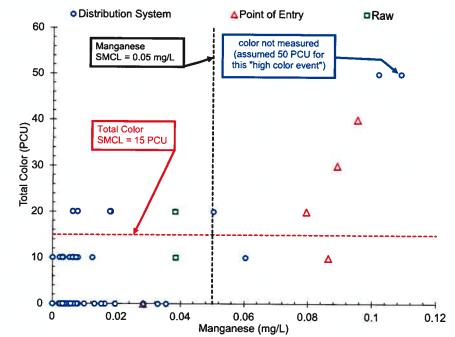


Figure 3 Manganese versus Total Color

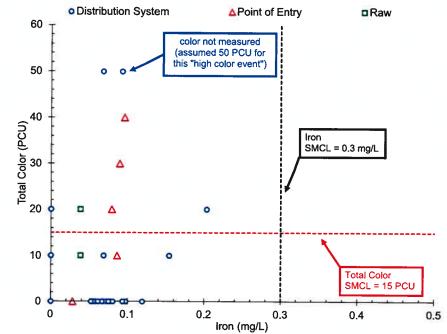


Figure 4 Iron versus Total Color

Following a hydraulic disturbance (e.g., main breaks or water main flushing) it is common for turbid water to be observed, and this has been reported in the HWWC system.

### pН

HWWC provided water treatment plant data, which included pH data at two points in the water treatment process identified as "Segment 1" (exiting the contact tank) and "Segment 2" (point of entry). There were some reported issues with pH measurements at the WTP in the past, and the pH probes were re-calibrated on July 27, 2020. Figure 5 compares data before and after recalibration in the two segments, but only data after recalibration were used in Table 2 and in the following discussion. Dissolved inorganic carbon (DIC) is calculated from paired alkalinity and pH data, so only data after recalibration was used to calculate DIC at the POE. Distribution system monitoring locations have measured pH values ranging between approximately 7.2 to 8.2, though typically is in the range of 7.5 to 8.0 (Figure 6 and Figure 7). These figures demonstrate that there are fewer than 10 percent of pH values at any distribution system location that are <7.2..

The pH in the distribution system is within the desired range for lead and copper solubility control (see later discussion), so adjustment of pH at the WTP will not be necessary if this pH range can be maintained in the distribution system. Routine monitoring of the distribution system and WTP pH should be continued.

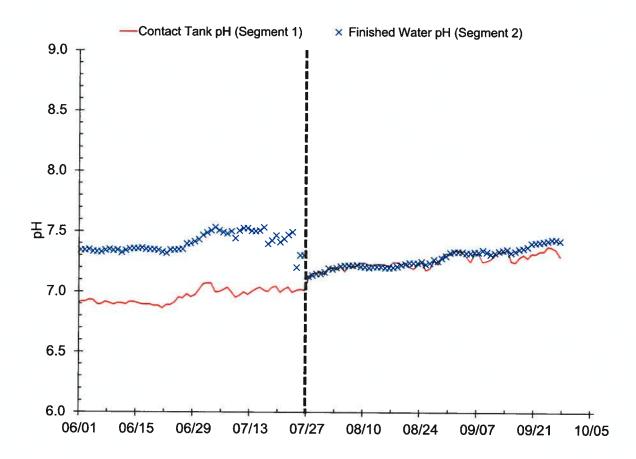


Figure 5 Historical pH data for Segments 1 and 2 at the WTP (Through September 27, 2020)

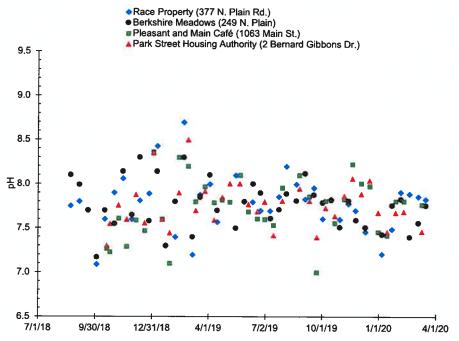


Figure 6 Distribution system (DS) pH versus date (August 2018 through August 2020)

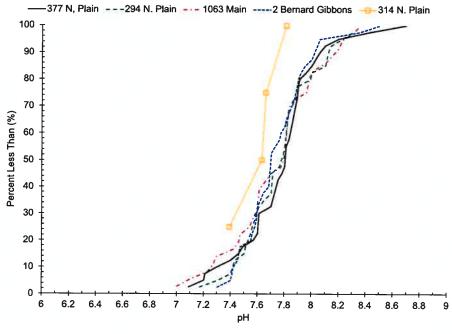


Figure 7 Percentile Distribution of DS pH (August 2018 through August 2020)

### LEAD AND COPPER

Based on historical LCR data, lead and copper levels have been relatively high in certain compliance periods. In the last 7 years, there have been three lead action level (AL) exceedances and four copper action level exceedances. According to HWWC, some of the high lead levels in the system were due to a customer(s) not following LCR compliance sampling protocols. In response, HWWC implemented an education program for the sampling efforts. Recent data have been lower, without an Action Level exceedance in the past three years (six monitoring periods). Below is a summary table of the 90th percentile for lead and copper since 2013 (Table 4). Data from individual locations provided by HWWC also shows that high lead (or copper) results, including results leading to action level exceedances, are not limited to a single household location.

Table 4 Historical 90th percentile lead and copper data

| Compliance Period | 2013 |     | 2014 | 2015 | 2016 |     | 2017 |     | 2018 |     | 2019 |     | 2020 |
|-------------------|------|-----|------|------|------|-----|------|-----|------|-----|------|-----|------|
|                   | Jun  | Nov | Jun  | Sep  | Jun  | Nov | Jun  | Dec | Jun  | Nov | May  | Dec | Apr  |
| Lead (µg/L)       | 16   | 6   | 6    | 15   | 18   | 19  | 17   | 14  | 7    | 5   | 12   | 6   | 3    |
| Copper (mg/L)     | 1.4  | 1.0 | 1.1  | 1.4  | 1.4  | 1.1 | 1.0  | 0.2 | 1.6  | 1.3 | 1.0  | 0.9 | 0.8  |

Lead 90<sup>th</sup> percentile action level =  $15 \mu g/L$  Copper 90<sup>th</sup> percentile action level = 1.3 mg/L

The lead and copper in recent years is trending lower. There has been no treatment change, other than maintenance of lower chlorine residuals (see later discussion about the need to maintain free chlorine residuals). Concentrations of lead and copper can be higher in warmer months, so monitoring results in warmer periods (June to September) should be noted to see if these trends continue. Even the 0.77 copper in April 2020 is high, based on Cornwell's experience, for an LCR compliance level since this is generally old copper at existing monitoring locations. For copper, a key issue is copper solubility after a new pipe or fixture is added. Old copper pipe can eventually develop a protective scale. However, new copper pipe has a higher solubility since it has not had time to form the protective scale. One way to evaluate the potential impact of adding new pipe is to use existing solubility models in the literature, as discussed below (note these models tend to overpredict solubility).

Theoretical and experimental solubility models for lead and copper were used to characterize HWWC water quality related to potential corrosion. A summary of recommended future actions for HWWC are included later in this memorandum. The lead and copper solubility relationships described in this memorandum are based on theoretical and experimentally determined conditions, and associated assumptions, that can be used for relative comparisons of different water sources. However, data evaluated by Cornwell in field and laboratory studies with water samples from various water systems has revealed that the relationships used to develop these curves result in

conservative (high) estimates of lead and copper solubility. For example, we have found the results for copper solubility are from 3 to 6 times lower in actual treated water than are predicted from the Lytle equation discussed below. So, the HWWC water may not be corrosive to copper (or lead), though this can be verified in laboratory solubility studies.

### **Theoretical Copper Solubility**

The DIC of the water entering the distribution system was estimated to be between 20 and 22 mg/L as C. This was calculated using paired alkalinity and pH data from Table 2.

The 90<sup>th</sup> percentile from LCR copper compliance data has been consistently  $\geq 1.0$  mg/L in the last 7 years, with 4 action level exceedances in the same time period. At HWWC there are some homes with copper service lines, and copper pipe and fittings are likely in premise plumbing.

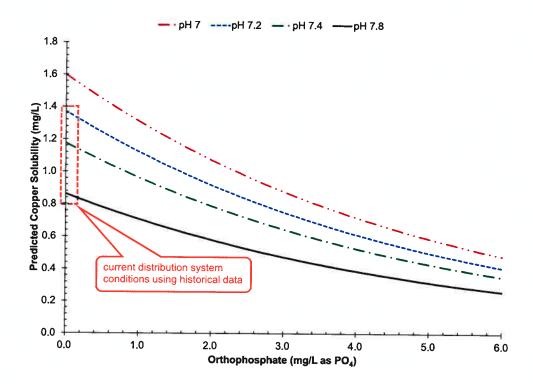
Figure 8 depicts experimental copper solubility estimated using the equation below developed by Lytle et al (2018). The HWWC used in this figure is 21.9 mg/L as C, and curves are shown in the figure for four different pH values.

```
Cu = 56.68 \times e^{-0.77 \times pH} \times e^{-0.20 \times PO4} \times DIC^{0.59} Where: Cu = predicted \ copper \ solubility \ (mg/L) pH = pH \ (unitless) PO4 = orthophosphate \ residual \ in \ mg/L \ as \ PO4 DIC = dissolved \ inorganic \ carbon \ (mg/L \ as \ C)
```

The pH in homes in the distribution system typically range between 7.2 to 8.2. Results in this figure suggest that the control of copper corrosion is achievable without the addition of orthophosphate if the pH is consistently above 7.3, since copper solubility using the Lytle equation is 1.3 mg/L or less.

A range of water quality conditions deemed "corrosive" to copper are shown in Figure 9 (no orthophosphate present). This figure reflects definitions recommended during the NDWAC (National Drinking Water Advisory Committee) discussions for the new revisions to the LCR (NDWAC 2015a&b). Water quality that falls in the unshaded region is considered to be non-corrosive to copper. Conditions that plot in the shaded region are corrosive to copper unless orthophosphate (at proper dose and pH) is added. Paired pH and alkalinity data from distribution system monitoring locations are plotted in Figure 9. Figure 9 demonstrated that when the distribution pH is >7.2, the water quality conditions are not conducive to copper corrosion. Limited copper solubility would be expected in HWWC treated water without orthophosphate if the pH is

maintained >7.2 under current alkalinity/DIC conditions, as shown in Figure 8 and Figure 9. Since HWWC copper levels are higher than expected based on theory and are higher than observed in most other surface water systems, additional evaluation of copper solubility for HWWC is recommended.



Experimental copper solubility equation as a function of DIC, PO4, and pH. Assumes a constant DIC of 21.9 mg/L as C.

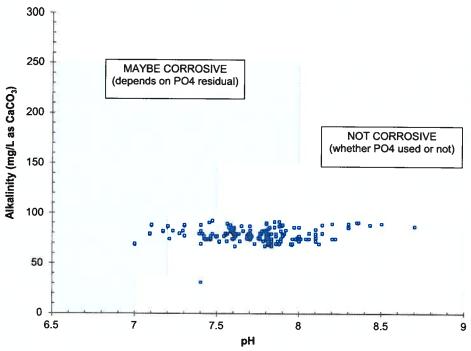


Figure 9 NDWAC defined conditions corrosive to copper (no orthophosphate present) versus paired pH and alkalinity data from the distribution system

# **Theoretical Lead Solubility**

The HWWC system 90<sup>th</sup> percentile lead exceeded the 15 µg/L action level during 2016 and 2017, and has exceeded 10 µg/L at various times since 2013 (Table 4). Recent data have been more favorable (HWWC passed the lead AL for the past three years covering the most recent six monitoring periods, perhaps due to increased attention to proper sampling procedures). HWWC has indicated there are no known lead service lines or lead goosenecks in their system, and whenever they encountered lead goosenecks (just a few were found in 35 years), the goosenecks were removed. According to HWWC, >90 percent of the service lines are galvanized iron. LCR monitoring results indicate there are likely still some sources of lead somewhere, which may be within individual household plumbing, though it is unknown whether this is due to lead solder or brass plumbing fixtures, or some other lead-containing sources.

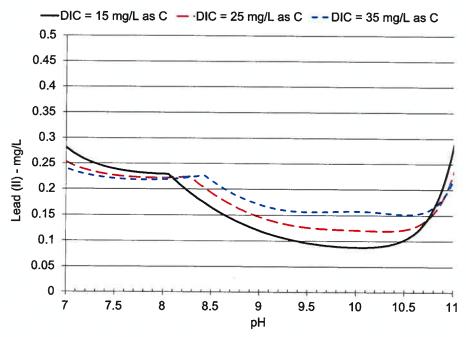


Figure 10 Theoretical Lead Solubility from Visual MINTEQ

Note:

Assumes: a) DIC values are constant, b) water temperature 25 C, c) no orthophosphate present, d) no lead (IV) present, and e) cerussite and hydrocerussite are present.

Figure 10 is a theoretical lead solubility curve developed using chemical equilibrium mathematical model software (Visual MINTEQ (version 3.1 (https://vminteq.lwr.kth.se/)), literature data for stability constants and solubility products, water quality data (DIC, water temperature, pH), and assumed equilibrium with carbonate solids (hydrocerussite and cerussite). The curve was developed for three different DIC values of 15, 25, and 35 mg/L as C. The DIC of the HWWC system is similar to the 25 mg/L as C line in this figure. The figure indicates the pH would need to be raised to >9 in order to minimize the lead solubility without the use of orthophosphate. That is not recommended given the potential to precipitate calcium carbonate above the 8.2 saturation pH for this water source.

Figure 11 is a theoretical curve from Schock (2015) comparing lead solubility (vertical axis) with orthophosphate dose (horizontal axis). There are four sets of solid colored lines at bottom of the chart depicting predicted lead solubility at DIC 4.8 mg/L as C for pH 7.0, 7.5, 8.0, and 8.5. Similarly, higher in the graph are four lines for DIC 48.0 mg/L as C at the same four pH values. Note this graph assumes no polyphosphate present and assumes room temperature. This graph shows that:

- For a given DIC, when no orthophosphate is added, the lower the pH the higher the lead solubility.
- As PO<sub>4</sub> increases, lead solubility decreases for each combination of pH and DIC conditions.

For the HWWC system (DIC ~22 mg/L as C) the results would plot between the 4.8 and 48 mg/L DIC curves, and suggest the ability of orthophosphate to reduce the solubility of lead for the pH range of the HWWC system.

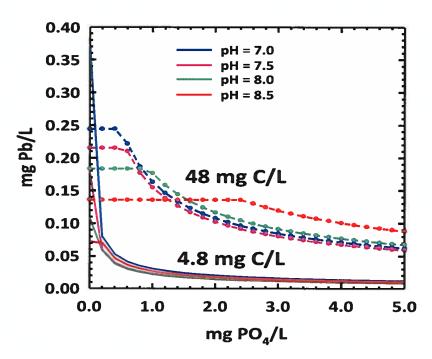


Figure 11 Lead solubility versus orthophosphate at 4.8 and 48 mg/L DIC at pH from 7.0 to 8.5 (Schock 2015)

### **USE OF POLYPHOSPHATE**

Note that when this report refers to orthophosphate for lead and copper solubility control it is referring to the free PO<sub>4</sub> not a polyphosphate. Polyphosphate can be used to help keep iron and manganese from causing colored water and staining household plumbing and clothes. However, the use of polyphosphate complicates lead and copper corrosion control treatment.

Orthophosphate is used to promote formation of insoluble lead and copper phosphates. Polyphosphate added to keep iron and manganese from precipitating (i.e., forming scale), can also keep lead and copper from forming a protective crystalline scale. Furthermore, when lead and copper scales do form in the presence of polyphosphate, any polyphosphate incorporated into the scale can make the scale less stable. When polyphosphate is used with orthophosphate, the lead and copper solubility can be higher than if you add orthophosphate alone, although there is some

amelioration of this as the polyphosphate gets older and naturally degrades from poly- to orthophosphate. Overall, there may be some instances where adding polyphosphate may be beneficial, especially when objectives other than lead and copper control are considered, but in most cases lead and copper control is optimized when orthophosphate is added alone.

Cornwell recommends adding iron or manganese removal when iron or manganese are above their SMCLs. Adding polyphosphate after this treatment will not be necessary for sequestration control of iron or manganese. In addition, if orthophosphate is needed for lead or copper control, it is recommended that it be added alone and not part of a blended phosphate. Since the treated water at the entry point in this system exceeds the 0.05 mg/L MCL for manganese, at least during warmer times of the year, it is recommended that treatment for manganese removal be added full-time, or at least seasonal, to limit manganese entering the distribution system. The best place to install manganese removal (and associated oxidation), orthophosphate injection, and any pH adjustment needs to be evaluated separately, though it is likely this will all happen following slow sand filtration.

## HARDNESS AND CALCIUM CARBONATE PRECIPITATION

Since corrosion control methods may include pH adjustment, the calcium carbonate precipitation potential and saturation pH should be considered in order to anticipate the impact of raising or lowering the pH in a water system. The distribution pH ranges from about 7.2 to 8.2, and typically is between 7.5 and 8.0, which is below the saturation pH and the resulting CCPP is negative. Calcium carbonate precipitation is not expected in this water source unless the pH is raised above the saturation pH of 8.2. Distribution system pH should continue to be monitored to see if it consistently remains within the 7.2 to 8.2 range, and if additional lead or copper control is needed then it may be necessary to add orthophosphate (after evaluating dose and pH conditions needed). The current distribution system pH already ranges from 7.2 to 8.2 so an additional pH increase is not recommended due to potential calcium carbonate precipitation complications. The calcium hardness of the system is 48 mg/L as CaCO<sub>3</sub>, but no total hardness data have been reported.

## **CHLORINE RESIDUAL**

On occasion, distribution system chlorine residuals in late 2019 and early 2020 dipped below the minimum recommended target residual of 0.2 mg/L, as shown in Figure 12. The chlorine residual should be maintained at a higher level in the distribution system to ensure proper disinfection. These residuals need to balance other concerns (DBP formation versus microbial control – see also Roth and Cornwell 2018).

Corrosion chemistry is complex, and it is difficult to determine whether lower chlorine residual may or may not have any positive implication for lead or copper corrosion. Higher free chlorine can increase iron levels in the water, but it is also important to note that chlorine residuals that are too low can lead to microbial growth in the distribution system, which can result in lower pH and consequently can increase the solubility of lead, copper, iron, and other metals. Adjustment of free chlorine doses as necessary in order to achieve  $\geq 0.2$  mg/L residual in all parts of the distribution system in all seasons is recommended. This may require higher residuals in other parts of the system to ensure that all points in the system are  $\geq 0.2$  mg/L.

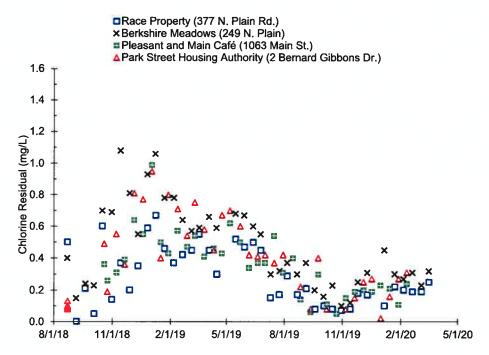


Figure 12 Distribution system chlorine residual

### RECOMMENDATIONS AND ACTION PLAN

Based on previous analysis and discussion:

- 1. Manganese concentrations above the secondary maximum contaminant limit (SMCL) of 0.05 mg/L are the identified source of the colored water. The manganese is in the treated water leaving the water treatment plant.
- 2. Manganese removal should be evaluated and implemented at least seasonally (warmer weather) when higher manganese and higher true color results are observed.
- 3. The addition of a polyphosphate or a blended phosphate to sequester manganese or iron is not recommended. Polyphosphate or blended phosphate can have a negative effect on lead and copper corrosion.
- 4. Iron removal at the source does not appear to be necessary, but treatment installed for manganese removal should remove iron if present
- 5. The current water chemistry in the distribution system, using samples representing "normal" conditions, results in a low Larson-Skold Index, suggesting the water may not be susceptible to iron corrosion. Results from a designated "color event" also show an iron concentration well below the SMCL.
- 6. Based on the data reviewed, treated water pH has typically been ≥7.4 in the distribution system without pH adjustment. However, if future monitoring shows that these pH levels are not regularly achieved, pH adjustment should be evaluated.
- 7. Free chlorine residuals should be maintained at the target residual of ≥0.2 mg/L in all parts of the distribution system in all seasons.
- 8. Sequential sampling to identify locations of the lead source in the customers' home or service lines is suggested for locations with historically high lead levels, and should also be considered after a treatment change, for example, after addition of: a) manganese removal processes, b) pH adjustment, or c) orthophosphate addition.
- 9. The current distribution system pH is already close to the saturation pH (8.2), so it may not be possible to increase the pH much higher. Consequently, if lead and copper cannot be controlled under current conditions, the addition of orthophosphate may need to be evaluated. Evaluation of orthophosphate and pH adjustment should include, at minimum,

laboratory solubility studies for lead and copper to evaluate optimal pH and orthophosphate dose.

The conclusions and recommendations for action are summarized in the table below:

Table 5 Summary of recommendations for treatment of metals

| Metal     | Problem | Evidence   | Recommended solution  |
|-----------|---------|--|---|
| Lead      | Maybe   | Action Level (AL) exceedance in past compliance periods, though < AL for the 6 most recent periods after improving sampling procedures   | Identify lead sources. If LCR data increase again over time then possibly re-evaluate CCT |
| Copper    | Maybe   | AL exceedance in past compliance periods. Theoretical modeling shows POE water likely is corrosive to copper, while the measured values are substantially higher than is typically observed. | Conduct laboratory solubility studies   |
| Iron      | No      | Levels <smcl< td=""><td>None needed, but manganese removal will likely remove iron (prior to POE)</td></smcl<>   | None needed, but manganese removal will likely remove iron (prior to POE)                 |
| Manganese | Yes     | Levels >SMCL Colored water complaints  | Evaluate removal via oxidation and filtration   |

### REFERENCES

- ASTM 2019. Standard Test Method for Color of Clear Liquids (Platinum-Cobalt Scale) ASTM D1209-05. ASTM International: West Conshohocken, PA.
- Leitz, F., and K. & Guerra, K. (2013). Water Chemistry Analysis for Water Conveyance, . Storage, and Desalination Projects: Manuals and Standards Program. US Department of the Interior, Bureau of Reclamation, Technical Service Center: Denver, CO.
- Lenard (Lenard Engineering, Inc.) 2016. Desktop Corrosion Control Study (December 2016). Housatonic Water Company: Great Barrington, MA.
- Lenard (Lenard Engineering, Inc.) 2017. Basis of Design Report: Proposed Corrosion Control Treatment (October 2017). Housatonic Water Company: Great Barrington, MA.
- Lytle, D., M. Schock, J. Leo, and B. Barnes. 2018. "A Model for Estimating the Impact of Orthophosphate on Copper in Water." *Jour. AWWA*, 110 (8): E1-E15.

the water in Long Pond was extremely clear, transparent, and free of color. The vegetation found is not likely to be the cause of the colored water issues in the distribution system. Overall the vegetation in the pond does not appear to be very extensive, and was less than is often found in ponds. Moving the intake is not recommended.

As was noted in the Cornwell Engineering Group report that was provided to MassDEP prior to their completion of this Sanitary Survey, the source of the color appears to be manganese (Cornwell, 2020). HWWC intends to install a manganese removal system as a treatment solution for the colored-water issue.

### B-6a: Storage Tank:

Corrective Action: Submit a tank inspection and cleaning report.

Response: The 1-MG storage tank was inspected and cleaned on November 9, 2020. The inspection report will be submitted to MassDEP once it is received by HWWC from the contractor.

Note that it is expected that some of the manganese in the source water that has been oxidized by chlorine will likely settle out in the storage tank. That manganese should stay settled on the bottom of the tank unless there is no chlorine residual and anoxic conditions develop, or the sludge is physically disturbed and suspended.

## B-6b: Storage Tank:

Corrective Action: Conduct a formal rooftop inspection. Pictures of hatches and vents should be taken and kept with an inspection report.

Response: The rooftop of the storage tank has been regularly inspected for years. The most recent inspection was conducted in November 2020.

### B-6c: Storage Tank:

Corrective Action: Provide written notification that appropriate screening has been installed on the overflow line.

Response: Appropriate screening has been ordered from the tank manufacturer, and will be installed when it is received. MassDEP will be notified when this has been completed.

### B-7a: Filtration:

Corrective Action: Provide a written report evaluating the current filtration components.

Response: HWWC is providing herein the requested information in lieu of a separate written report. All SCADA filter data for 2020 have been evaluated, and no elevated turbidity issues were found at any time. A review of eight different filter cleanings in 2020 was conducted to evaluate filter flow rates and effluent turbidity when only one filter was actively online. Filter effluent turbidities remained well below the

required levels at all times, and the hydraulic loading rates were within MassDEP guidelines for slow sand filtration.

#### B-7b: Filtration:

Sanitary Survey Comment: Although this (hydrorake system) cleaning process may reduce head loss through the filter, it may not be adequately removing contaminants such as manganese or organics that result in color which are then being washed through the filters and appear in the distribution system under certain conditions.

Corrective Action: Develop a method of cleaning and re-sanding the filters in a manner described within the Guidelines.

Response: HWWC does not agree with MassDEP's contention that the filter sand cleaning method could be the cause of the occasional colored water incidents, and counters that MassDEP's postulated theory is unsupported speculation. The hydraulic harrowing method used may actually be more proficient at removing manganese and other contaminants as the wash goes deeper into the top of the sand than does typical manual scraping and disposal of the top Schmutzdecke layer. Harrowing can improve organic matter removal by enhancing the density of the bacterial populations (e.g., AWWA Research Foundation's Manual of Design for Slow Sand Filtration, 1991; Kem 1996). Enhanced bacterial populations could then potentially enhance manganese removal. MassDEP's suggestion implies an assumption that most of the manganese in the filter is in the top ½-inch or so of sand that is removed during each cleaning, and that is not likely the case.

While particulate manganese can be removed by sand filters, dissolved manganese should pass through unless it has first been oxidized to non-soluble (particulate) form. If manganese does adhere to the filters during periods of high manganese levels in the source water, then that manganese would likely desorb during periods of low manganese levels in the source water in order to maintain thermodynamic equilibrium between the solid and aqueous phase concentrations. Since HWWC's manganese levels are low most of the time, and high levels are observed only infrequently, it is more than likely that the filters are fairly clean of manganese. Dissolved manganese that does pass through the filters can be oxidized by chlorine in the clearwell and storage tank, and settle out in those locations in an insoluble form or pass into the distribution system.

If manganese was stored in the filters it would be in oxidized form and insoluble, and it would then take anoxic conditions to chemically reduce the manganese into soluble form and trigger a substantial release (dissolving of the precipitated manganese), and that is very unlikely as long as the filters are actively used.

### B-7c: Filtration:

Corrective Action: Monitor for iron, manganese, and color weekly for each filter effluent.

Response: HWWC will continue to monitor as requested by MassDEP.

### B-7d: Filtration:

Corrective Action: The filters must be re-sanded.

Response: HWWC does not agree with this request. There is no indication of a problem with the sand, and there is no evidence that there are any functional or operational problems with the slow sand filters. The filters continue to consistently provide excellent performance, with very low effluent turbidities and no ripening time needed after cleaning. The colored water issues that need to be resolved are caused by occasional spikes in manganese levels (Cornwell Engineering Group, 2020), not by aged sand particles.

### B-7e: Filtration:

Corrective Action: Evaluate the filtration system's ability to effectively filter to waste.

Response: The hydraulic washing method for cleaning the sand only takes about an hour per filter (about 3-4 hours total including draining and part of the filling), and is extremely advantageous in that there is no need for a ripening time since the filters continue to provide effective filtration immediately after cleaning. And if some filtering to waste was ever needed, there is an approximate 10-day storage volume available in the 1-MG storage tank to meet customer demand.

Regardless, the current piping and valving system does allow for filter to waste from either filter. After the two individual filter effluents combine into one pipe, there is a single valve that directs that combined flow to either the clearwell (as filtered water) or the lagoon (as filter to waste). As such, while one filter is filtering to waste, the other filter needs to either be taken out of service (flow stopped) or be filtering to waste also. HWWC is considering installation of the necessary two valves and piping to allow for either filter effluent to flow to the clearwell while the other filter is filtering to waste, thus allowing for extended filter to waste periods if that ever became necessary.

### B-7f: Filtration:

Corrective Action: Establish a filter loading rate.

Response: The filters consistently provide a water with very low turbidity, well below the regulatory requirements for slow sand filters. Water Compliance Solutions has reviewed all of the filter SCADA data for 2020 (values stored once per minute), and found no issues with filter effluent turbidity at any time, including during and immediately after filter sand cleanings. Filter hydraulic loading rates were determined and were within the MassDEP design guidelines.

The maximum loading rate of the filters is determined by dividing the maximum flow rate by the filter area. We will evaluate this from two perspectives: (1) historical maximum daily flows, and (2) observed flow rates for individual filters while the other filter was offline.

Each filter is 48 ft x 48 ft, for a total of 2,304 ft<sup>2</sup> per filter, and 4,608 ft<sup>2</sup> total for both filters. For HWWC, production flow data are considered for this purpose only after 12/5/19 when a big leak was found and repaired that decreased water demand by approximately 39%. The peak daily flow from 12/6/19 to 11/3/20 was approximately 166,000 gpd (not counting days of system flushing), with an average of 103,346 gpd (counting all days).

The maximum daily flow loading rate is as follows:

```
Max loading rate (two filters) = 166,000 \text{ gal/day} \div 4,608 \text{ ft}^2 = 36 \text{ gal/day/ft}^2
Max loading rate (if one filter) = 166,000 \text{ gal/day} \div 2,304 \text{ ft}^2 = 72 \text{ gal/day/ft}^2
```

The absolute highest daily flow from 12/6/19 to 11/3/20 was approximately 231,000 gpd during a day of heavy flushing on July 12, 2020, which corresponds to an average applied hydraulic loading rate of 50 gal/day/ft<sup>2</sup>.

A review of eight different filter cleanings in 2020 was conducted to evaluate filter flow rates and effluent turbidity when only one filter was actively online. Filter effluent turbidities remained well below required levels at all times during and after each of those filter cleanings. Of those eight occasions, the maximum flow rate observed for an individual filter was approximately 120 gpm (173,000 gpd) for Filter #2 on 5/9/20, which corresponds to a hydraulic loading rate of 75 gal/day/ft². The maximum turbidity for Filter #2 effluent during and after the time that Filter #1 was offline for cleaning was no higher than 0.06 NTU, well below the maximum turbidity level allowed of 5 NTU with 95% of samples being  $\leq 1$  NTU. When Filter #1 came back online after the cleaning its effluent turbidity did not change, and was no higher than 0.05 NTU. This lack of a need for ripening time is one of the primary advantages of using a hydraulic harrowing method for cleaning slow sand filters.

The MassDEP guidelines for slow sand filtration indicate that "the nominal rate may be 45 to 150 gal/day/ft² of sand area, with somewhat higher rates accepted based on piloting results." The maximum filter flow rates observed at HWWC are within this range or slightly lower, and all filter turbidity data have been very good.

### B-8a: Distribution:

Corrective Action: Continue with the current weekly water quality monitoring program.

Response: HWWC will continue to monitor as requested by MassDEP. For the record, that current monitoring program is biweekly, not weekly (other than a temporary request for some filter effluent sampling, as discussed in Item B7c above). HWWC

expects to separately request a modification to the MassDEP-mandated special monitoring program that increases sampling where most beneficial and reduces some unnecessary and overly redundant sampling requirements.

### B-8b: Distribution:

Corrective Action: Housatonic has been working with a consultant to review water quality conditions from the source through the distribution system with a goal of addressing distribution water quality complaints. Submit a copy of the consultant's study report by December 31, 2020, and implement recommendations by June 1, 2021.

Response: The report from the Cornwell Engineering Group was previously submitted to MassDEP on November 3, 2020, prior to completion of the Sanitary Survey.

Though HWWC will endeavor to complete the recommended manganese treatment system as soon as possible, the many required steps (conception, design, approval, bidding, construction, etc.) suggest that meeting MassDEP's deadline to implement recommendations by June 1, 2021 may be rather difficult.

### B-8c: Distribution:

Corrective Action: Provide written notification that a new hydraulic study of Housatonic's entire distribution system has been completed, and submit a copy of that report.

Response: HWWC will be hiring a contractor in 2021 to inspect each fire hydrant and to conduct fire flow testing of each hydrant.

## B-8d: Distribution:

Corrective Action: Provide written notice that it has coded all hydrants in a manner that depicts the size of the water main and the associated water pressure.

Response: This can be completed after the fire flow testing has been completed. HWWC will coordinate with the local fire department about the hydrant color coding. Note that at present all hydrants are freshly painted (actually, HWWC's hydrants look very noticeably nice, and look better than hydrants in almost any other water system).

#### B-8e: Distribution:

Corrective Action: Submit a copy of its distribution map identifying the location of all water mains not owned by the Water Company.

Response: The requested map is attached to this response to the Sanitary Survey.

#### B-8f: Distribution:

Corrective Action: Submit a bylaw (or appropriate equivalent) which requires that these mains be maintained by the owners of the properties that they serve. Complete by March 31, 2021.

Response: This is in process.

## B-8g: Distribution:

Corrective Action: Written notification to all customers served by a privately owned water main must be completed by the March 31, 2021 date, alerting them to the creation of the bylaw (or equivalent) and providing notice as to where the public water supply ends and the private water main begins.

Response: Understood. MassDEP will be notified when this is completed.

## B-8h: CIP for water main replacement:

Corrective Action: Submit an amendment to the current Capital Improvement Plan which prioritizes water main replacement projects, anticipated cost, and a 5-year & 10-year schedule for the priority projects, specific to water main replacement

Response: HWWC believes it is most important to prioritize installation of a manganese removal system, not pipe replacement. As was reported previously to MassDEP, the colored water issues that need to be resolved are caused by occasional spikes in manganese levels, not by the age of the pipes (Cornwell Engineering Group, 2020).

### B-9: Sample taps:

Corrective Action: Provide written notice that both taps have either been replaced or adapted in a manner that results in a dedicated unthreaded tap for sample collection only.

Response: The MassDEP inspection was on September 16, 2020. When I visited the treatment plant on 11/10/20, neither the raw water tap nor the finished water tap were threaded. The finished water tap is a tygon tube, and the raw water tap was smooth on the inside but threaded on the outside, which shouldn't matter. No change was made to the taps.

### B-10: Unaccounted for water:

Corrective Action: Submit a detailed UAW Plan which identifies its plan of action to reduce its unaccounted water.

Response: A major leak was fixed on December 5, 2019 that reduced the 10-day average demand by 39 percent (based on the 10-day average finished water production preceding and subsequent to 12/5/19). As such, the amount of unaccounted for water has substantially decreased. Note that water lost through leaks would not add to the colored-water problems, and instead would help to flush water out of the system. HWWC has already contracted for a leak study, and will provide the report when it is completed.

### C-1: Emergency generator

Corrective Action: MassDEP recommends that Housatonic install the necessary electrical connection to allow for a portable generator to be installed until the installation of an on-site generator is completed.

Response: We agree this would be useful, and a quote has already been obtained for this work. Consideration is also being given to installing either that electrical connection or the actual on-site generator when the treatment plant is upgraded in 2021 with construction of a manganese removal system.

# C-2: Chemical purchases:

Corrective Action: Consideration should be given to using a chlorine purchasing system that would allow for more frequent delivery of lesser volumes.

Response: This change was completed prior to the Sanitary Survey. Chlorine purchases are now monthly.

The following attachments are included with this response to the Sanitary Survey:

- HWWC Staffing Plan
- Map of distribution system showing private water lines

I hope MassDEP finds these responses satisfactory. Please do not hesitate to contact me if you have any questions.

Respectfully yours,

Richard W. Gullick, PhD

Richard W. Gullick

Founder/Owner

Water Compliance Solutions, LLC 151 Old Farm Road Leominster, MA 01453 cell/text: 856-404-0484 wcs.llc@comcast.net



# SANITARY SURVEY COMPLIANCE PLAN RESPONSE FORM for TABLE A or B

Within 30 days of receipt of this inspection report, you must complete and submit this response form if your system has TABLE A -Violations and/or TABLE B-Deficiencies (see attached Compliance Tables). Attach a copy of the completed tables listing the date that the corrective action was or will be taken by your system and all other applicable documentation. (310 CMR 22.04(12))

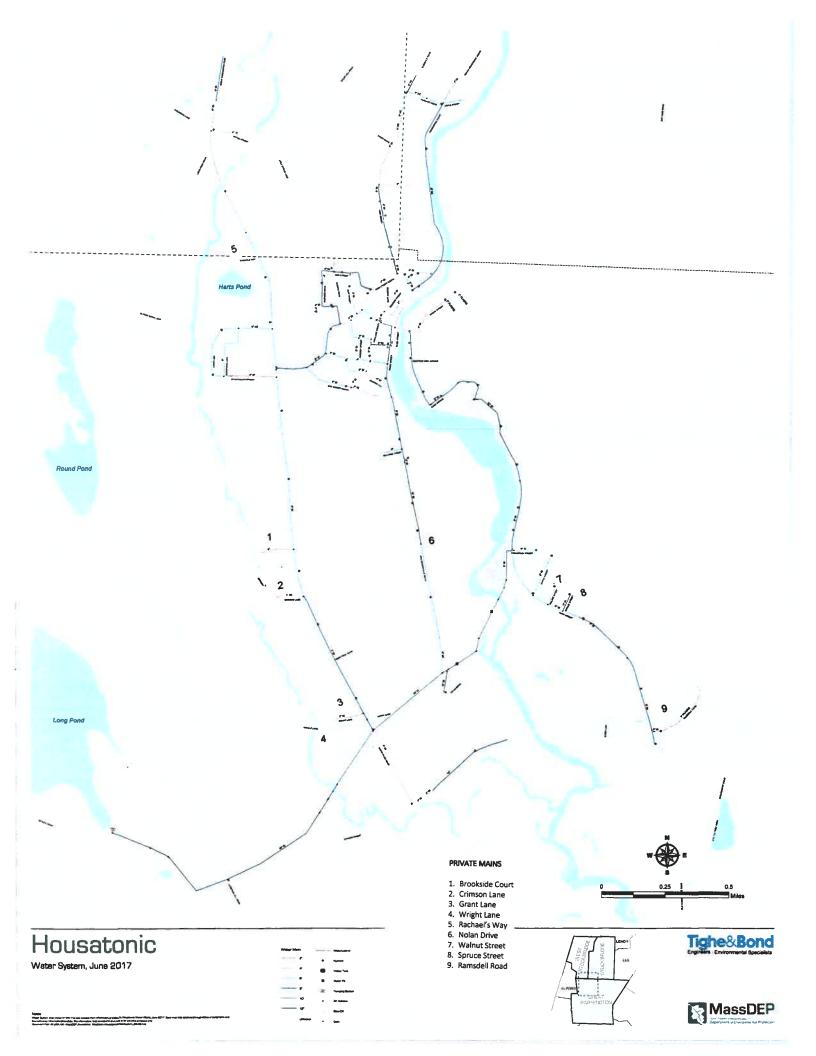
Please note that violations listed in TABLE A of the Compliance Plan are also a Notice of Noncompliance

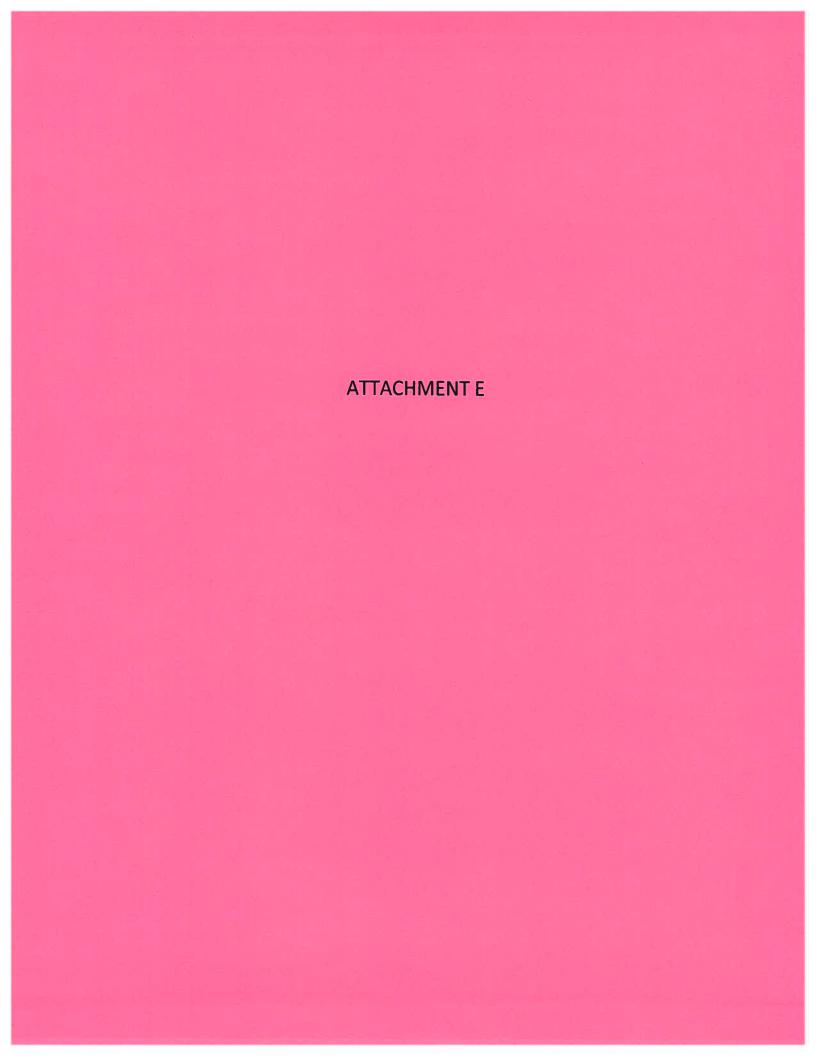
(NON) pursuant to M.G.L. c.21A, §16 and 310 C.M.R. 5.00 and may require the submission of quarterly written progress reports on the identified violations. The following corrective actions listed in the Sanitary Survey Compliance Plan(s) TABLE A and/or B has been taken by the public water system. (Please check all that apply). My system has taken ALL of the corrective actions listed within the timeframes specified in the Sanitary Survey Compliance Plan(s). For each item, I have listed the completion date of the corrective action within each table. I have attached copies of supporting documentation as required. My system has taken SOME BUT NOT ALL of the corrective actions listed within the timeframes specified in the Sanitary Survey Compliance Plan(s). My system HAS NOT complied with ALL of the requirements set forth in the Sanitary Survey Compliance Plan(s). For each item, I have listed the actual or anticipated completion date of the corrective action within each table. I have attached copies of supporting documentation as required. I have attached a revised corrective action schedule establishing timelines for my system to address outstanding items and I will submit a written progress report each quarter (every 3 months) until all items have been addressed. I understand that my system may be subject to further enforcement action. My system is **UNABLE** to comply with some or all of the corrective actions within the timeframes specified in the Sanitary Survey Compliance Plan(s). I understand that my system may be subject to further enforcement action. An explanation is attached. I hereby acknowledge receipt of the inspection findings and compliance plan table(s) of the sanitary survey conducted by the Department of Environmental Protection's Drinking Water Program. I certify that under penalty of law I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief. Water Commissioner, Owner, Owner Representative or Other Responsible Party: Date: Signature: Title: Print Name: Return this form, a copy of each Compliance Plan Table and all attachments to:

DEP-BWR Drinking Water Program, 436 Dwight Street, Springfield, MA 01103 **Attention: Douglas Paine** 

# System Staffing and Comprehensive Operations Plan

| System Name: Housatonic Water V<br>System Classification: COM  | Works City/Town: Great<br>NTNC NC ((   | : Barrington PWS I   | ID#: 1113003                              |
|--|--|--|---|
| Contract Operator(s) License   | d Staff 🛛 No Certif  | fied Operator (  | (Check one)                               |
| Operator Name: James J. Mercer   | Phone# 413-528-1780  | Grade/Cert# 1T/  | 1D  |
| Operator Name: Peter Marks   | Phone# 413-329-1919  | Grade/Cert# 2D/  | 1 <b>T</b>                                |
| Give a brief description of <b>propos</b> week, or month that the licensed of number of the person accepted by the absence of the licensed operator of the operators listed above are "g   | perator will be at the fact<br>the licensed operator whe<br>r. (See notes below for for              | cility. Include the notion will be responsible information.              | ame and telephone<br>le for the system in |
| Company operations include an operation of minimum 40 hrs./week, on call source condition, facility security maintenance of chemicals, pump exercising valve, hydrant repairs as -water sampling and reporting, maintenance of chemicals, pump exercising valve, hydrant repairs | 24/7 with responsibility, treatment & mainter os, equipment, facilities.), storage, and distribution | y for I. System On nance (monitoring, s, and distribution; II Regulatory | perations such as<br>emergency plan       |
| Contact Information:   |  |  |   |
| Operator Name: James J. Mercer   | Phone# 413-52  | 28-1780 / 413-446-   | 1801                                      |
| Operator Name: Peter Marks   | Phone# 413-32  | 9-1919   |   |
| Other Personnel: Frederick J. Merce  | Phone# 413-52  | 28-1780/413-446-16   | 579                                       |
| Please note the following:   |  |  |   |
| 1. The primary operator must be able to respond to er  | nergencies within one hour during t  | nose times when he or she is   | not present at the facility.              |
| 2. The primary operator is responsible for the operation affiliated with the public water system are acting under  | on of the system during his or her ab  | roman hatuuruu salaalii III.   |   |
| 3. The PWS must have the ability to detect any malfu   | nction in the operation of the facility  | y/system in the absence of the   | primary operator.                         |
| l certify under penalty of law that I am the person accurate and complete to the best of my knowled  | authorized to fill out this form ge and belief.  |  |   |
| Signature Signature  |  | Date Korenles  | 24,2020                                   |
|  |  |  |   |



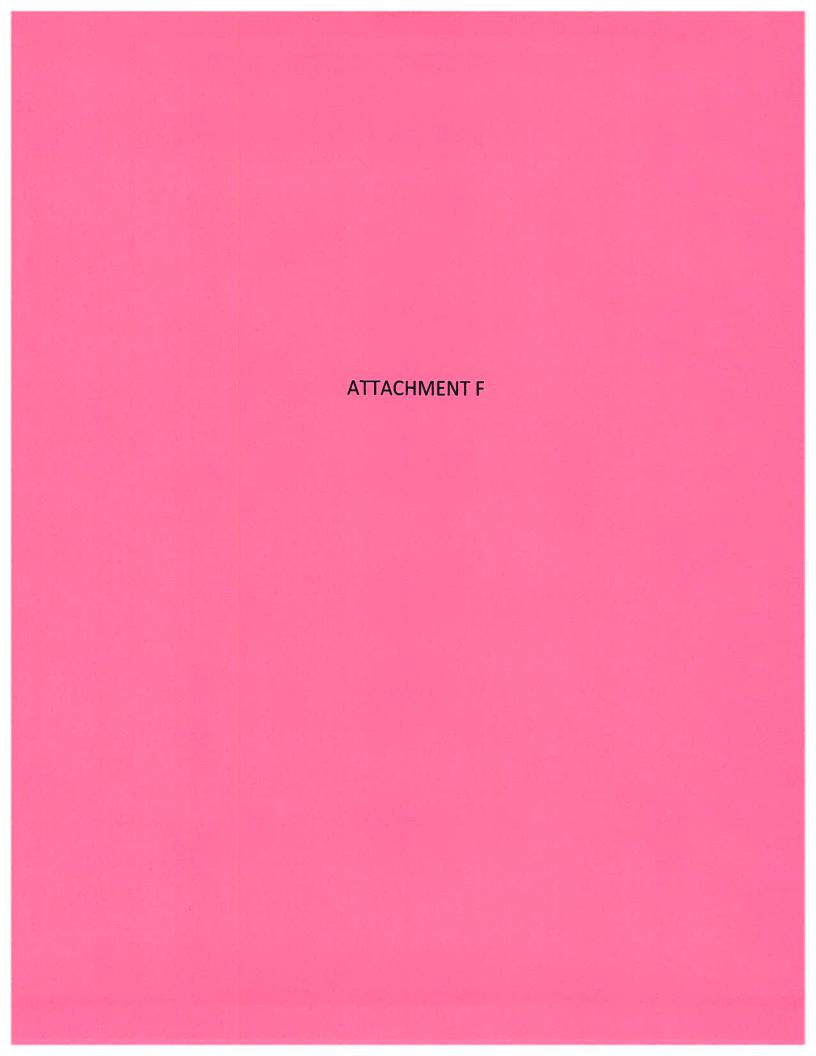




DINCE FOX

**MASTER PLAN** 

JANUARY 2016





**Since 1897** 

**Emergency Response Plan** 

December 2014

# Contents

| Introduction: Emergency Response Plan Requirements | 3  |
|--|----|
| Section 1. Emergency Response Mission and Goals    |    |
| Section 2. System Information                      | 5  |
| Section 3. Chain of Command – Lines of Authority   | 6  |
| Section 4. Events that Cause Emergencies           |    |
| Section 5. Severity of Emergencies                 | 8  |
| Section 6. Emergency Notification                  | 10 |
| Section 7. Water Quality Sampling                  | 14 |
| Section 8. Effective Communication                 | 15 |
| Section 9. The Vulnerability Assessment            | 18 |
| Section 10. Response Actions for Specific Events   | 19 |
| Section 11. Alternative Water Sources              | 23 |
| Section 12. Curtailing Water Use                   | 24 |
| Section 13. Returning to Normal Operation          | 25 |
| Section 14. Training and Rehearsals                | 26 |
| Section 15. Plan Approval                          |    |

# **Emergency Response Plan Requirements**

Massachusetts Drinking Water Regulations 310 CMR 22.04 require "Each water supplier must prepare and keep in an easily accessible place an Emergency Response Plan (ERP) prepared in accordance with 310 CMR 22.04(13) and the Massachusetts Drinking Water Guidelines and Policies for Public Water Systems, Chapter 12 – Emergency Response Planning Requirements Guidance including Appendix O – Handbook for Water Supply Emergencies." Further, Massachusetts Drinking Water Regulation 310 CMR 22.15 requires the annual submittal of an updated emergency response plan.

This additional guidance document can be used to help meet the requirement for developing an emergency response program. Other methods or formats can also be used to meet the MassDEP Drinking Water Program emergency response program requirements.

# Section 1. Emergency Response Mission and Goals

| Mission statement for emergency response | In an emergency, the mission of the Housatonic Water Works Company is to protect the health of our customers by being prepared to respond immediately to a variety of events that may result in contamination of the water or disruption of supplying water. |
|--|--|
| Goal 1                                   | Be able to quickly identify an emergency and initiate timely and effective response action.  |
| Goal 2                                   | Be able to quickly notify local, state, and federal agencies to assist in the response.  |
| Goal 3                                   | Protect public health by being able to quickly determine if the water is not safe to drink or use and being able to immediately notify customers effectively of the situation and advise them of appropriate protective action.                              |
| Goal 4                                   | To be able to quickly respond and repair damages to minimize system down time.   |

# Section 2. System Information

**Example: System information** 

| Example: System information                                  |   |  |  |
|--|---|--|--|
| Public Water System  | 1113003   |  |  |
| Identification Number (PWS ID#)                              |   |  |  |
| System name and address                                      | Housatonic Water Works Company  |  |  |
| Directions to the system                                     | Head north on US Route  | e 7 from the center of Great Barrington veer   |  |
|  | left onto Route 41 for 2.   | .5miles. Then turn left onto Division Street.  |  |
|  | Proceed 1 miles (pass th  | nrough one set of blinking lights) Water   |  |
|  |   | on right : 162 Division Street.  |  |
| Basic description and  | Source of water is Long   | Pond Reservoir, which has a storage capacity   |  |
| Location/Town Population served and service connections from | consists of two slow san<br>and a 1.1 million gallon<br>iron main carries water | ith a total surface area of 110 acres. The plant of filters which measure 50 feet by 50 feet, above ground storage tank. A 10 inch cast to the distribution system. A flow paced located in the pipe room at the filtration er flowing to town.  859 connections |  |
| MassDEP Drinking Water                                       |   |  |  |
| Program records.   |   |  |  |
| System owner (the owner should                               | Frederick J. Mercer, Pre  | esident  |  |
| be listed as a person's name)                                |   |  |  |
| Name, title, and phone                                       | James J. Mercer   |  |  |
| number of person   | Treasurer   |  |  |
| responsible for maintaining                                  | (413) 528- 1780 Office  | e  |  |
|  |   |  |  |
| and implementing the   | (413) 446-1801 Cell   |  |  |

# Section 3. Chain of Command – Lines of Authority

| Name and title  | Responsibilities during an  | Contact numbers  |
|---|---|--|
| James J. Mercer<br>Primary Certified Water<br>System Operator | Responsible for overall management and decision making for the water system. The Water System Operator is the lead for managing the emergency, providing information to regulatory agencies, the public and news media. All communications to external parties are to be approved by the Water System Operator. | Phone:<br>(413) 528-1780<br>Cell:<br>(413) 446-1801<br>Home:<br>(413) 528-5028 |
| James Olmstead<br>Secondary Certified<br>Operator             | relaying critical information, assessing facilities, and providing recommendations to the Water   | Phone:<br>(413) 644-9614<br>Pager:<br>413-261-2150<br>Home:<br>413-528-0102    |
| Linda Funk<br>Office Administrator                            | provide a standard carefully pre-<br>scripted message to those who call<br>with general questions. Additional   | Phone<br>(413) 528-1780<br>Cell<br>(413) 446-0484<br>Home<br>(413) 274-6034    |
| Roland Houle<br>Field Staff                                   | Delivers door hangers and supports<br>Water System Operator.  | Phone<br>(413) 274-6301  |

# Section 4. Events that Cause Emergencies

| Type of event         | Probability or risk<br>(High – Med – Low) | Comments   |
|-----------------------|---|--|
|                       |   |  |
| Flood                 | Low                                       | System not located in an area vulnerable to flooding.    |
| High winds            | Low                                       | 5 Day supply of water if power is disrupted.             |
| Ice storm             | Low                                       | 5 Day supply of water if power is disrupted.             |
| Drought               | Low                                       | System has a water restriction bylaw in place if needed. |
| Terrorism             | Low                                       | Gated reservoir access, checked frequently.              |
| Construction accident | Med                                       | Construction crews occasionally hit pipes.               |
| Chemical<br>spill     | Low                                       | Complete wellhead protection plan.                       |

# Section 5.

# Severity of Emergencies (increases as Level number increases)

# Level I emergency

Description: The Housatonic Water Works system considers the following as Level I emergencies:

- Distribution line breaks.
- Short power outages.
- Minor mechanical problems in pump-houses.
- Other minor situations where it is not likely that public health will be jeopardized. The system has specific response activities identified for these types of emergencies, including proper sampling, disinfection, and pressure testing activities. System personnel are advised and are directed to work on the problem and are usually capable of resolving the problem within 24 hours. If it is determined that the problem will take longer than 24 hours to resolve and storage is likely to be drawn down below a safe operating level, the situation will be elevated to Level II.

## Level II emergency

Description: The Housatonic Water Works system considers the following Level II emergencies:

- Disruption in supply such as a transmission main line break, pump failure with a potential for backflow, and loss of pressure.
- Storage is not adequate to handle disruption in supply.
- An initial positive coliform or E. coli sample.
- An initial primary chemical contaminant sample.
- A minor act of vandalism.
- Drought, with a noticeable and continuing decline of water level in the reservoir.

### Level III emergency

**Description:** The Housatonic Water Works water system considers the following as Level III emergencies:

- A verified acute confirmed coliform MCL or E. coli/fecal positive sample requiring immediate consideration of a health advisory notice to customers.
- A confirmed sample of another primary contaminant requiring immediate consideration of a health advisory notice to customers.
- A loss or complete malfunction of the water treatment facilities for the surface water source, including chlorination.
- An act of vandalism or terrorist threat such as intrusion or damage to a primary facility.
- An immediate threat to public health of the customers and an advisory is required.
- Severe drought significantly affecting reservoir yield.

# Level IV emergency

**Description:** The Housatonic Water Works system considers the following events to be Level IV emergencies:

- Act of terrorism possibly contaminating the water system with biological or chemical agents.
- Flood that infiltrates system facilities and sources.
- Chemical spill within 2000 feet of the system's sources.
- Storm that significantly damages power grid and system facilities.
- Mudslide or other earth shift that causes failure of transmission.

# Section 6. Emergency Notification

Housatonic Water Works Procedures for notifying system customers of potential water shortage.

| Who is responsible: | The Water System Operator is responsible for making the decision to notify customers regarding a potential water shortage and the need for water use restrictions. The Water System Operator should consult with field staff to make the decision. Once the decision is made, procedures for notification will be initiated.  |
|---------------------|---|
| Procedures:         | <ul> <li>Water System Operator confers with key staff to verify problems.</li> <li>Water System Operator organizes staff to develop the message to be delivered to the customers.</li> <li>Water System Operator consults with state drinking water staff regarding the problem.</li> <li>Water System Operator with assistance from staff prepares customer door hangers, signs, Internet, phone and radio message.</li> <li>Water System Operator continues to investigate problem and make repairs as necessary.</li> <li>The water shortage notification will be distributed by: <ol> <li>Field staff placing "water shortage notices" on doors and along travel routes.</li> <li>Staff will place signs on main travel routes into the community.</li> <li>Water System Operator contacts WSBS am radio and Board of Health for reverse 911 notification and requests issuance of the water shortage notice and request to curtail water use.</li> <li>Administrative support person will provide a pre-scripted message to phone callers and log in each phone call.</li> </ol> </li> <li>Water System Operator continuously updates the water system n water shortage.</li> <li>Once water shortage is resolved, re-notify customers.</li> </ul> |

# **Emergency Notification Call List**

| Local Law Enforcement day (413) 528-0306      | Local Law Enforcement night (413) 528-0306            |
|---|---|
| Fire Dept day (413) 528-0788                  | Fire Dept night (413) 274-6357                        |
| Ambulance service day (413) 528-3632          |   |
| Local Health Jurisdiction day (413) 528-0680  | Local Health Jurisdiction after hours (413) 229-9093  |
| Water Testing Laboratory day (413) 243-1416   | Water Testing Laboratory after hours (413) 243-0669   |
| Local emergency management day (413) 528-8454 | Local emergency management after hours (413) 528-8454 |
| Water System Operator day (413) 528-1780      | Water System Operator night (413) 528-5028            |
| Neighboring Water System day (413) 528-0133   | Neighboring Water System night (413) 229-3090         |
| Neighboring Water System day (413) 298-5581   | Neighboring Water System night                        |
| News Media Contact (413) 528-3660             | Local Radio Station – WSBS (413) 528-0860             |
| Other- Hazmat Team (413) 499-3050             | Other   |

# State notification list

| State Police day         | (413) 243-0600                | State Police night                   | (413) 243-0600                   |
|--------------------------|-------------------------------|--------------------------------------|----------------------------------|
| Drinking Water Program   | Regional Office day (888) 304 | - Drinking Water Program<br>304-1133 | Regional Office after hours (888 |
| State testing laboratory | day (413) 243-1416            |                                      | after hours – (413) 243-1416     |
| Other Hazmat Hotline     | (800) 424-8802                | Other – Dig Safe                     | (888) 344-7233                   |

# Service/repair notification list

| (413) 446-6768          | Electrician night  | (413) 446-6768   |
|-------------------------|--|--|
| onal Grid (413)584-2660 | Electric Utility night   | (413) 753-7016   |
| (413) 528-9305          | Plumber night  | (413) 528-9305   |
| (413) 442-9309          | Pump Specialist night  | (413) 442-9309   |
| (413) 229-7711          | Soil Excavator night   | (413) 229-7711   |
|                         | Equipment Rental nigh  | t  |
| (413) 528-0560          | Sewer Utility at night   | (413) 528-0560   |
| (413) 528-4520          | Pipe Supplier  | (800) 322-1327   |
|                         | (413) 528-9305<br>(413) 442-9309<br>(413) 229-7711<br>(413) 528-0560 | enal Grid (413)584-2660 Electric Utility night  (413) 528-9305 Plumber night  (413) 442-9309 Pump Specialist night  (413) 229-7711 Soil Excavator night  Equipment Rental night  (413) 528-0560 Sewer Utility at night |

# Notification procedures

# Notifying water system customers

| Who is<br>Responsible: | James Mercer   |
|------------------------|--|
| Procedures:            | Using reverse 911 system; announcement on WSBS radio station |

# Alerting local law enforcement, state drinking water officials, and local health

| Who is<br>Responsible: | James Mercer                 |  |
|------------------------|------------------------------|--|
| Procedures:            | Calling appropriate agencies |  |

# Contacting service and repair contractors

| Who is<br>Responsible: | James Mercer                                       |
|------------------------|--|
| Procedures:            | Calling appropriate repair and service contractors |

# Contact neighboring water systems, if necessary

| Who is       | James Mercer                           |
|--------------|--|
| Responsible: |  |
|              |  |
| Procedures:  | Contact Great Barrington Fire District |
|              |  |
|              |  |

# Procedures for issuing a health advisory

| Who is<br>Responsible: | James Mercer                             |
|------------------------|--|
| Procedures:            | Contact Great Barrington Board of Health |

# Section 7.

# Water Quality Sampling

Housatonic Water Works Water quality sampling

| Sampling parameter                           | Do we have procedures? Yes/No | Basic steps to conduct sampling (sites, frequency, procedures, lab requirements, lab locations, lab contacts, lab hours, etc.) |  |  |
|--|-------------------------------|--|--|--|
| Coliform Bacteria                            | Yes                           | Tested monthly.  |  |  |
| Heterotrophic Plate<br>Count (HPC)           | No                            | Develop procedures.  |  |  |
| Chlorine Residual                            | Yes                           | Tested daily at plant.   |  |  |
| Chlorine Demand                              | Yes                           | Evaluate procedures.   |  |  |
| Nitrate/Nitrite                              | Yes                           | Tested as State Requires.  |  |  |
| Total Organic<br>Carbon (TOC)                | No                            | Develop procedures.  |  |  |
| Total Halogenated<br>Organic Carbon<br>(TOX) | Yes                           | Tested as State Requires.  |  |  |
| Cyanide                                      | No                            | Develop procedures.  |  |  |

# Section 8.

# **Effective Communication**

Effective communication is a key element of emergency response. The effectiveness with which we communicate with each other, our customers, and the media can affect the outcome of the situation.

Developing partnerships with others in our local emergency response network, establishing relationships with our customers and the media, and creating communication tools such as fact sheets and media releases ahead of time will help us communicate efficiently and successfully during a crisis. For example, we will establish positive media relations before an emergency. We will make an effort to meet with reporters in our local area to share information about our water system and how they could receive information should an emergency occur. We will also contact our local emergency response organization and determine what assistance they can provide during an emergency.

During an emergency, the media, our customers, and others will have many questions. We will be prepared by organizing basic facts about the crisis and our water system. We will assemble a team of players quickly, including a main spokesperson and one or more people to answer customer calls.

We should expect our customers to be concerned or upset during a drinking water emergency. How we communicate with people is as important as the content of the information we are delivering. Body language, tone of voice, and expressions of sympathy all play an important role in how the information is received. When an emergency occurs, the news media may be onscene quickly, requesting information that will inevitably go to the public. We will appoint a spokesperson to communicate to the media. We will make sure the spokesperson is credible, accessible, in a position of authority, and trained in media interview techniques.

We will develop key messages to use with the media that are clear, brief, and accurate. We will make sure our messages are carefully planned and have been coordinated with local and state officials.

We will make sure field and office staff know how to deal with the media and questions from customers and the public. It may be necessary to establish protocols for both field and office staff to respectfully defer questions to the spokesperson.

Small water systems with a limited staff like ours should remember that our MassDEP, Drinking Water Program regional office is available to assist in developing and communicating messages to the media and the public. This can be especially helpful when staff need to focus on sampling or repairs.

### **Communication Tips**

#### Do:

- Be prepared.
- Designate a spokesperson.
- Provide complete, accurate, and timely information.
- Tell the truth.
- Express empathy.
- Acknowledge uncertainty and offer to get back with more information later.
- Document your communications.

#### Do not:

- Speculate on the cause or outcome of an incident.
- Blame or debate.
- Minimize or brush off concerns of customers.
- Treat inquiries from interested parties as an annoying distraction from the real business of emergency response.

## Example: Designate a spokesperson and alternates

| Spokesperson                   | Alternate 1                       | Alternate 2              |
|--------------------------------|-----------------------------------|--------------------------|
| James Mercer, Primary Operator | Linda Funk , Office Administrator | James Olmstead, Operator |

# Example: Key messages

# Develop possible messages in advance, and update them as the emergency develops:

- "We are taking this incident seriously and doing everything we can to resolve it."
- "Our primary concern is protecting our customers' health."
- "Another important concern is keeping the system operational and preventing damage."
- "What we know right now is....."
- "The information we have is incomplete. We will keep you informed as soon as we know more."
- "We have contacted state and local officials to help us respond effectively."
- "If you think you may be ill or need medical advice, contact a physician."
- "We are sampling the water and doing tests to determine whether there is contamination."

#### **Health Advisories**

During events when water quality and public health are in question, it may be necessary to issue a health advisory. The term "Health Advisory" means advice or recommendations to water system customers on how to protect their health when drinking water is considered unsafe. These advisories are issued when the health risks to the consumers are sufficient, in the estimation of the water system or state or local health officials, to warrant such advice.

Health advisories usually take the form of a drinking water warning or boil water advisory. Communication during these times is critical. MassDEP Drinking Water Program staff are committed to working closely with water systems to determine if an advisory is needed. Health advisories should always be well thought out and provide very clear messages. Health advisories can be challenging and time consuming for the water system and public health partners. They are also inconvenient for water system customers. However, these advisories are necessary in order to protect public health. In determining whether to issue a health advisory, there are many things to consider and questions to answer, usually in a short time period. This is another important reason that water systems should form partnerships in advance of these events. If there are well-formed partnerships, it will be much easier to obtain information, make decisions, and get the information out to the public.

MassDEP Drinking Water Program has put together a number of tools, including fact sheets, brochures, door hangers forms, and template to help water systems be prepared to issue a health advisory. We will learn about health advisories and how to issue them before we actually need to. It will make the process much smoother. We can learn more about the coliform health advisory packet by visiting the MassDEP Drinking Water Web site at: <a href="http://www.mass.gov/dep/water/drinking/systems.htm#emerresp">http://www.mass.gov/dep/water/drinking/systems.htm#emerresp</a>.

# Section 9. The Vulnerability Assessment

| System component              | Description and condition  | Vulnerability   | Improvements or mitigating actions | Security improvements   |
|-------------------------------|--|---|------------------------------------|---|
| Source                        | Long Pond Reservoir located southwest of Housatonic, off of Division Street. Long Pond has a storage capacity of 260 million gallons with a total surface area of 110 acres.   | The source is most vulnerable to contamination from above ground activities, as it is a surface source. | Area is inspected frequently.      |   |
| Storage                       | There is a 1.1 million gallon above-<br>ground concrete storage tank at Long<br>Pond. The tank was last inspected in<br>2014.  |   |                                    | Access to tank is secured.  |
| Treatment                     | There is a chlorination system at Long Pond in sound operating condition. Only sodium hypochlorite is used for treatment. The chlorinator is kept in excellent condition with spare parts on hand. All operating manuals and control systems diagrams as well as safety procedure manuals and personal protection equipment are located at the Long Pond Facility.   |   |                                    | Chemical Storage is secured, chlorinator is in secure alarmed facility. |
|                               | The pump-house and pumping facilities are in good condition.   |   |                                    | Facility is alarmed   |
| Computer and telemetry system | Computer and telemetry systems are located in the water systems main office. All systems are in good operating condition. The distribution system maps, treatment plant plans, water chemistry information, and schematic of treatment processes are stored in the office at 80 Maple Avenue, Great Barrington MA. The office is alarmed and computers backed up off premises. Originals are stored off premises |   |                                    | Facility is alarmed   |

## Section 10.

## **Response Actions for Specific Events**

The following tables identify the assessment, set forth immediate response actions, define what notifications need to be made, and describe important follow-up actions.

A. Power outage

| Assessment        | System is vulnerable to power outages; does not have a generator but has a connection so that one can be rented and plugged into system if needed. Storage is able to supply the system for three days usage, or until power is restored. |
|-------------------|---|
| Immediate actions | Assess if outage will likely be more than 6 hours. If not, be on alert for changing conditions and monitor storage tank. If yes, complete the following:  |
| Notifications     | Power Co. – let them know public water system is experiencing an outage. Taylor Rental – obtain generator; customers – cut back on water usage.   |
| Follow-up actions | Turn off and return generator; return system to general power supply, inspect reservoir and pumping facilities, write report.   |

#### B. Transmission or main break

| Assessment        | HWW is vulnerable to line and main breaks.  |
|-------------------|---|
| Immediate actions | Turn off water, call "Dig Safe" and Wilkinson Excavating to repair.   |
| Notifications     | If necessary, notify customers whose water will be shut down.   |
| Follow-up actions | Turn water back on and check to make sure everything is working correctly. Notify customers water is back on. Write report. |

#### C. Service line break

| Assessment        | HWW 's customers' service lines are vulnerable to breaks as the majority are galvanized.                      |
|-------------------|---|
| Immediate actions | Assess Situation.   |
| Notifications     | Notify customer that service line is homeowner responsibility- provide copy of Company Rules and Regulations. |
| Follow-up actions | Monitor repair.   |
|                   |   |

D. Chlorine treatment equipment failure

| Assessment        | HWW is vulnerable to line treatment equipment failure.                                     |
|-------------------|--|
| Immediate actions | Install back-up pump, collect water samples and check residual levels and treat as needed. |
| Notifications     | If health issue, notify customer via reverse 911 system.                                   |
| Follow-up actions | Retest water and make sure levels are normal. Notify customers if needed.                  |

E. Treatment equipment

| Assessment        | HWW is vulnerable to line treatment equipment failure.          |
|-------------------|---|
| Immediate actions | Assess situation.   |
| Notifications     | If health issue arises, notify customer via reverse 911 system. |
| Follow-up actions | Monitor.  |
|                   |   |

F. Source pump failure

| Assessment        | Low vulnerability as we have a back-up pumps at our disposal.         |
|-------------------|---|
| Immediate actions | Make sure pump is working correctly.                                  |
| Notifications     | If health issue notify customer via reverse 911 system.               |
| Follow-up actions | Once original pump is fixed make sure everything is working properly. |

G. Microbial (coliform, E. coli) contamination

| Assessment        | Determine how widespread the contamination is and isolate the contamination.                |
|-------------------|---|
| Immediate actions | Turn up chlorinator and flush area affected/Sample/Monitor.                                 |
| Notifications     | Notify Mass DEP, notify customers via reverse 911 system.                                   |
| Follow-up actions | Test water to make sure no further consideration, notify customers, write emergency report. |

#### H. Chemical contamination

| Assessment        | Low vulnerability.   |  |
|-------------------|--|--|
| Immediate actions | Assess situation, isolate / contain.                         |  |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system. |  |
| Follow-up actions | Monitor.   |  |
|                   |  |  |

#### I. Vandalism or terrorist attack

| are alarmed; reservoir access gated.                    |
|---|
| ater for contamination and follow procedures necessary. |
| DEP & Officials and customers via reverse 911 system.   |
| mergency report.  |
|   |

J. Reduction or loss of water in the well

| Assessment        | n/a |  |
|-------------------|-----|--|
| Immediate actions |     |  |
| Notifications     |     |  |
| Follow-up actions |     |  |

K. Drought

| Assessment        | Housatonic Water has low vulnerability for drought as per historic data; storage tank holds five days of usage: provisions for interconnection with GBFD in place. |
|-------------------|--|
| Immediate actions | Monitor tank levels.   |
| Notifications     | Follow restriction of usage procedures via reverse 911 system.   |
| Follow-up actions | Make sure water levels are normal; notify customers and write emergency report.  |

#### L. Flood

| Assessment        | HWW has low vulnerable to flooding; however, its pumping station, Filters & CT Basin are located below Long Pond Dam.         |
|-------------------|---|
| Immediate actions | Assess situation /isolate affected facility components / take affected components off line to minimize disruption of service. |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system.  |
| Follow-up actions | Monitor.  |

M. Earthquake

| Assessment        | ment Housatonic Water has low vulnerability per historic data.            |  |
|-------------------|---|--|
| Immediate actions | Assess facility/Monitor.  |  |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system if necessary. |  |
| Follow-up actions | Monitor.  |  |

N. Hazardous materials spill in vicinity of sources or system lines

| Assessment        | Determine how widespread the contamination is and isolate the contamination.                 |  |
|-------------------|--|--|
| Immediate actions | Turn up chlorinator and flush area affected.   |  |
| Notifications     | Notify HazMat and Mass DEP. Notify customers via reverse 911 system.                         |  |
| Follow-up actions | Test water to make sure no further contaminations. Notify customers, write emergency report. |  |

O. Electronic Equipment Failure

| Assessment Obtain manual pressure reading at tank. |   |  |  |
|--|---|--|--|
| Immediate actions                                  | Determine tank level and run pump manually as needed.                       |  |  |
| Notifications                                      | n/a   |  |  |
| Follow-up actions                                  | Once fixed take pump off manual and make sure everything resumes as normal. |  |  |

P. Cyber attack

| Assessment        | Housatonic Water has low vulnerability. Facility systems, while mostly electronic are not tied into a mainframe. |
|-------------------|--|
| Immediate actions | Monitor and assess.  |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system if necessary.  |
| Follow-up actions | Monitor, Notify DEP & Officials and customers if necessary   |

#### Q. Other

| Q. Other          | <br> |      |      |   |
|-------------------|------|------|------|---|
| Assessment        |      |      | -    | - |
| Immediate actions |      | <br> | <br> |   |
| Notifications     |      | <br> | <br> |   |
| Follow-up actions |      | <br> | <br> | - |
|                   |      |      |      |   |

## Section 11. Alternative Water Sources

## Inter connect to adjacent water supply system

| Water systems within one-quarter mile of our   |   |
|--|---|
| system   | Feasibility of connecting   |
| There is access to another water system (Great Barrington Fire District) located approximately one-quarter mile from the Housatonic Water Works. | Housatonic Water Works has plans to install an interconnection with the Great Barrington Fire District in the future. |
|  |   |

## Alternate source(s) of water

| Alternative sources  | Names                                 | Phone        | Availability   | Is the water safe for drinking? |
|--|---------------------------------------|--------------|--|---------------------------------|
| Bottled Water<br>Supplier                                      | Berkshire<br>Mountain Spring<br>Water | 413 229-3997 | Up to 4,780 gals.<br>In 5 gal. jugs<br>within 24 hours | yes                             |
| Tanker trucks in<br>area available to<br>deliver bulk<br>water | Billy Kie's<br>Construction           | 413 232-4496 | 30,000 gallons in<br>less than 6 hours                 | no                              |
|  |                                       |              |  |                                 |
|  |                                       |              |  |                                 |

# Section 12. Curtailing Water Usage

## Curtailing water use:

| Water curtailment measures  | Actions   |
|---|---|
| As per the Housatonic Water Works rules and regulations outside water usage including watering lawns can be restricted. | Upon making the decision that curtailment is needed: Activate reverse 911 system to get the curtailment message out. Contact WSBS news to announce curtailment. |
| Lawns, washing cars, etc.   | Message, monitor system usage and spot check meter usage. Continue message as long as curtailment is warranted.   |
|   |   |
|   |   |
|   |   |

# Section 13. Returning to Normal Operation

## Returning to normal operations

| Action                                  | Description and actions  |  |  |
|---|--|--|--|
| Inspect, flush and disinfect the system | Water System Operator James Mercer and support staff inspect all system facilities, ensure all water quality tests have been done and the system has been flushed and disinfected if necessary. Water system operator makes a report to the water system Operator. James Mercer makes decision on current condition of system. |  |  |
| Coordinate with                         |  |  |  |
| MassDEP Drinking                        | Water System Operator coordinates with MassDEP on system.  |  |  |
| Water Program                           |  |  |  |
| Verification of                         | Water System Operator.   |  |  |
| Water Quality                           | water system operator.   |  |  |
| Notify customers                        | Water System Operator directs office secretary to notify customers via   |  |  |
| Notify customers                        | Reverse 911 program message and dictates letter to customers.  |  |  |
| Write emergency                         | Water System Operator writes report and sends copy to MassDEP.   |  |  |
| report                                  | vvacer system operator writes report and serius copy to Massing.   |  |  |

## Section 14. Training and Rehearsals

## Training

| Identify staff position training needs and expectation | ons.  |
|--|---|
| Position   | Training needs and expectations.  |
| Water System Operator                                  | Emergency Response communications, planning, issuing health advisories, suspicious activity training. |
| Water System Operator                                  | Emergency response communications, emergency response planning, suspicious activity training.         |
| Field support- Water System Operator                   | Emergency response communications, suspicious activity training.                                      |
| Administrative support- Water System Operator          | Emergency Response communications, planning.  |

#### **Emergency rehearsals**

Schedule for drills, tabletop exercises, and other ways to practice emergency response:

| Event                   | Description  | People and organizations involved           | Date            |
|-------------------------|--|---|-----------------|
| Rehearsal               | Conduct actual emergency drill   | Water system staff                          | unannounced     |
| On-site training drills | Conduct specific drills, communications, water Line breaks, sampling with a professional trainer | Water system staff and professional trainer | to be scheduled |

## Section 15. Plan Approval

## Plan approval

This plan is officially in effect when reviewed, approved, and signed by the following people:

| Name /Title                              | Signature/ Date |          |
|--|-----------------|----------|
| James J. Mercer<br>Water System Operator | Jane            | 12.29.14 |



Since 1897

**Emergency Response Plan** 

September 2020

# Contents

| Introduction: Emergency Response Plan Requirements | 3  |
|--|----|
| Section 1. Emergency Response Mission and Goals    |    |
| Section 2. System Information                      | 5  |
| Section 3. Chain of Command – Lines of Authority   | 6  |
| Section 4. Events that Cause Emergencies           |    |
| Section 5. Severity of Emergencies                 | 8  |
| Section 6. Emergency Notification                  | 10 |
| Section 7. Water Quality Sampling                  | 14 |
| Section 8. Effective Communication                 | 15 |
| Section 9. The Vulnerability Assessment            | 18 |
| Section 10. Response Actions for Specific Events   | 19 |
| Section 11. Alternative Water Sources              | 23 |
| Section 12. Curtailing Water Use                   | 24 |
| Section 13. Returning to Normal Operation          | 25 |
| Section 14. Training and Rehearsals                | 26 |
| Section 15. Plan Approval                          |    |

## **Emergency Response Plan Requirements**

Massachusetts Drinking Water Regulations 310 CMR 22.04 require "Each water supplier must prepare and keep in an easily accessible place an Emergency Response Plan (ERP) prepared in accordance with 310 CMR 22.04(13) and the Massachusetts Drinking Water Guidelines and Policies for Public Water Systems, Chapter 12 – Emergency Response Planning Requirements Guidance including Appendix O – Handbook for Water Supply Emergencies." Further, Massachusetts Drinking Water Regulation 310 CMR 22.15 requires the annual submittal of an updated emergency response plan.

This additional guidance document can be used to help meet the requirement for developing an emergency response program. Other methods or formats can also be used to meet the MassDEP Drinking Water Program emergency response program requirements.

## Section 1. Emergency Response Mission and Goals

| Mission statement for emergency response | In an emergency, the mission of the Housatonic Water Works Company is to protect the health of our customers by being prepared to respond immediately to a variety of events that may result in contamination of the water or disruption of supplying water. |
|--|--|
| Goal 1                                   | Be able to quickly identify an emergency and initiate timely and effective response action.  |
| Goal 2                                   | Be able to quickly notify local, state, and federal agencies to assist in the response.  |
| Goal 3                                   | Protect public health by being able to quickly determine if the water is not safe to drink or use and being able to immediately notify customers effectively of the situation and advise them of appropriate protective action.                              |
| Goal 4                                   | To be able to quickly respond and repair damages to minimize system down time.   |

## Section 2. **System Information**

| Example: System information                      |  |                 |
|--|--|-----------------|
| Public Water System                              | 1113003  |                 |
| Identification Number (PWS ID#)                  |  |                 |
| System name and address                          | Housatonic Water Works   | s Company       |
| Directions to the system                         | Head north on US Route 7 from the center of Great Barrington veer left onto Route 41 for 2.5 miles. Then turn left onto Division Street. Proceed 1 miles (pass through one set of blinking lights) Water system entrance gate is on right: 162 Division Street.  |                 |
| Basic description and                            | Source of water is Long Pond Reservoir, which has a storage capacity   |                 |
| location of system facilities                    | of 263 million gallons with a total surface area of 110 acres. The plant consists of two slow sand filters which measure 50 feet by 50 feet, and a 1.1 million gallon above ground storage tank. A 10 inch cast iron main carries water to the distribution system. A flow paced sodium hypochlorinator located in the pipe room at the filtration plant disinfects the water flowing to town. |                 |
| Location/Town                                    | Housatonic, MA   |                 |
| Population served and                            | 1300 people  | 859 connections |
| service connections from                         |  |                 |
| MassDEP Drinking Water                           |  |                 |
| Program records.                                 |  |                 |
| System owner (the owner should                   | Frederick J. Mercer, President   |                 |
| be listed as a person's name)                    |  |                 |
| Name, title, and phone                           | James J. Mercer  |                 |
| number of person                                 | Treasurer  |                 |
|  | (413) 528- 1780 Office   |                 |
| responsible for maintaining                      | (413) 326-1760 Office  |                 |
| responsible for maintaining and implementing the | (413) 328-1780 Office<br>(413) 446-1801 Cell   |                 |

# Section 3. Chain of Command – Lines of Authority

| Name and title  | Responsibilities during an  | Contact numbers  |  |
|---|---|--|--|
|   | emergency   |  |  |
| James J. Mercer<br>Primary Certified Water<br>System Operator | Responsible for overall management and decision making for the water system. The Water System Operator is the lead for managing the emergency, providing information to regulatory agencies, the public and news media. All communications to external parties are to be approved by the Water System Operator. | Phone:<br>(413) 528-1780<br>Cell:<br>(413) 446-1801<br>Home:<br>(413) 528-5028 |  |
| Peter Marks<br>Secondary Certified<br>Operator                | relaying critical information, assessing facilities, and providing  | Phone:<br>(413) 528-1033<br>Cell:<br>(413) 328-1919                            |  |
| Linda Funk<br>Office Administrator                            | provide a standard carefully pre-<br>scripted message to those who call<br>with general questions. Additional   | (413) 528-1780<br>Cell   |  |
| Roland Houle<br>Field Staff                                   | Delivers door hangers and supports<br>Water System Operator.  | Phone<br>(413) 274-6301  |  |

# Section 4. Events that Cause Emergencies

| Type of event         | Probability or risk<br>(High – Med – Low) | Comments   |
|-----------------------|---|--|
|                       |   |  |
| Flood                 | Low                                       | System not located in an area vulnerable to flooding.    |
| High winds            | Low                                       | 5 Day supply of water if power is disrupted.             |
| Ice storm             | Low                                       | 5 Day supply of water if power is disrupted.             |
| Drought               | Low                                       | System has a water restriction bylaw in place if needed. |
| Terrorism             | Low                                       | Gated reservoir access, checked frequently.              |
| Construction accident | Med                                       | Construction crews occasionally hit pipes.               |
| Chemical<br>spill     | Low                                       | Complete wellhead protection plan.                       |

#### Section 5.

### Severity of Emergencies (increases as Level number increases)

#### Level I emergency

**Description:** The Housatonic Water Works system considers the following as Level I emergencies:

- Distribution line breaks.
- Short power outages.
- Minor mechanical problems in pump-houses.
- Other minor situations where it is not likely that public health will be jeopardized. The system has specific response activities identified for these types of emergencies, including proper sampling, disinfection, and pressure testing activities. System personnel are advised and are directed to work on the problem and are usually capable of resolving the problem within 24 hours. If it is determined that the problem will take longer than 24 hours to resolve and storage is likely to be drawn down below a safe operating level, the situation will be elevated to Level II.

#### Level II emergency

**Description:** The Housatonic Water Works system considers the following Level II emergencies:

- Disruption in supply such as a transmission main line break, pump failure with a potential for backflow, and loss of pressure.
- Storage is not adequate to handle disruption in supply.
- An initial positive coliform or E. coli sample.
- An initial primary chemical contaminant sample.
- A minor act of vandalism.
- Drought, with a noticeable and continuing decline of water level in the reservoir.

#### Level III emergency

**Description:** The Housatonic Water Works water system considers the following as Level III emergencies:

- A verified acute confirmed coliform MCL or E. coli/fecal positive sample requiring immediate consideration of a health advisory notice to customers.
- A confirmed sample of another primary contaminant requiring immediate consideration of a health advisory notice to customers.
- A loss or complete malfunction of the water treatment facilities for the surface water source, including chlorination.
- An act of vandalism or terrorist threat such as intrusion or damage to a primary facility.
- An immediate threat to public health of the customers and an advisory is required.
- Severe drought significantly affecting reservoir yield.

### Level IV emergency

**Description:** The Housatonic Water Works system considers the following events to be Level IV emergencies:

- Act of terrorism possibly contaminating the water system with biological or chemical agents.
- Flood that infiltrates system facilities and sources.
- Chemical spill within 2000 feet of the system's sources.
- Storm that significantly damages power grid and system facilities.
- Mudslide or other earth shift that causes failure of transmission.

## Section 6. Emergency Notification

Housatonic Water Works Procedures for notifying system customers of potential water shortage.

| Shortage.           |   |
|---------------------|---|
| Who is responsible: | The Water System Operator is responsible for making the decision to notify customers regarding a potential water shortage and the need for water use restrictions. The Water System Operator should consult with field staff to make the decision. Once the decision is made, procedures for notification will be initiated.  |
| Procedures:         | <ul> <li>Water System Operator confers with key staff to verify problems.</li> <li>Water System Operator organizes staff to develop the message to be delivered to the customers.</li> <li>Water System Operator consults with state drinking water staff regarding the problem.</li> <li>Water System Operator with assistance from staff prepares customer door hangers, signs, Internet, phone and radio message.</li> <li>Water System Operator continues to investigate problem and make repairs as necessary.</li> <li>The water shortage notification will be distributed by: <ol> <li>Field staff placing "water shortage notices" on doors and along travel routes.</li> <li>Staff will place signs on main travel routes into the community.</li> <li>Water System Operator contacts WSBS am radio and Board of Health for reverse 911 notification and requests issuance of the water shortage notice and request to curtail water use.</li> <li>Administrative support person will provide a pre-scripted message to phone callers and log in each phone call.</li> </ol> </li> <li>Water System Operator continuously updates the water system n water shortage.</li> <li>Once water shortage is resolved, re-notify customers.</li> </ul> |

## **Emergency Notification Call List**

| Local Law Enforcement day (413) 528-0306      | Local Law Enforcement night (413) 528-0306            |
|---|---|
| Fire Dept day (413) 528-0788                  | Fire Dept night (413) 274-6357                        |
| Ambulance service day (413) 528-3632          |   |
| Local Health Jurisdiction day (413) 528-0680  | Local Health Jurisdiction after hours (413) 229-9093  |
| Water Testing Laboratory day (413) 248-4622   | Water Testing Laboratory after hours (413) 248-4622   |
| Local emergency management day (413) 528-8454 | Local emergency management after hours (413) 528-8454 |
| Water System Operator day (413) 528-1780      | Water System Operator night (413) 528-5028/446-1801   |
| Neighboring Water System day (413) 528-0133   | Neighboring Water System night (413) 229-3090         |
| Neighboring Water System day (413) 298-5581   | Neighboring Water System night                        |
| News Media Contact (413) 528-3660             | Local Radio Station – WSBS (413) 528-0860             |
| Other- Hazmat Team (413) 499-3050             | Other   |
|   |   |

### State notification list

| State Police day             | (413) 243-0600               | State Police night                 | (413) 243-0600                     |
|------------------------------|------------------------------|------------------------------------|------------------------------------|
| Drinking Water Program Re    | gional Office day (888) 304- | Drinking Water Program<br>304-1133 | n Regional Office after hours (888 |
| State testing laboratory day | (413) 243-1416               | State testing laboratory           | after hours – (413) 243-1416       |
| Other Hazmat Hotline         | (800) 424-8802               | Other – Dig Safe                   | (888) 344-7233                     |
|                              |                              |                                    |                                    |

## Service/repair notification list

| 413)584-2660<br>13) 528-9305<br>13) 442-9309 | Electric Utility night  Plumber night  Pump Specialist night | (413) 753-7016<br>(413) 528-9305<br>(413) 442-9309         |
|--|--|--|
|  |  |  |
| 13) 442-9309                                 | Pump Specialist night  | (413) 442-9309   |
|  |  | ( ,  |
| 3) 229-7711                                  | Soil Excavator night   | (413) 229-7711   |
|  | Equipment Rental nigh  | t  |
| 3) 528-0560                                  | Sewer Utility at night                                       | (413) 528-0560   |
| 3) 528-4520                                  | Pipe Supplier  | (800) 322-1327   |
|  | 3) 528-0560  | Equipment Rental night  3) 528-0560 Sewer Utility at night |

### Notification procedures

### Notifying water system customers

| Who is<br>Responsible: | James Mercer   |
|------------------------|--|
| Procedures:            | Using reverse 911 system; announcement on WSBS radio station |

## Alerting local law enforcement, state drinking water officials, and local health

| Who is<br>Responsible: | James Mercer                 |  |
|------------------------|------------------------------|--|
| Procedures:            | Calling appropriate agencies |  |

### Contacting service and repair contractors

| Who is       | James Mercer                                       |
|--------------|--|
| Responsible: |  |
|              |  |
| Procedures:  | Calling appropriate repair and service contractors |
|              |  |
|              |  |

## Contact neighboring water systems, if necessary

| Who is<br>Responsible: | James Mercer                           |
|------------------------|--|
| Procedures:            | Contact Great Barrington Fire District |

## Procedures for issuing a health advisory

| Who is<br>Responsible: | James Mercer                             |
|------------------------|--|
| Procedures:            | Contact Great Barrington Board of Health |

## Section 7.

## Water Quality Sampling

Housatonic Water Works Water quality sampling

| Sampling parameter                                      | Do we have procedures? Yes/No | Basic steps to conduct sampling (sites, frequency, procedures, lab requirements, lab locations, lab contacts, lab hours, etc.) |  |
|---|-------------------------------|--|--|
| Coliform Bacteria                                       | Yes                           | Tested monthly.  |  |
| Heterotrophic Plate Count (HPC)  No Develop procedures. |                               | Develop procedures.  |  |
| Chlorine Residual                                       | Yes                           | Tested daily at plant.  Evaluate procedures.   |  |
| Chlorine Demand   | Yes                           |  |  |
| Nitrate/Nitrite   | Yes                           | Tested as State Requires.  |  |
| Total Organic<br>Carbon (TOC)                           | No                            | Develop procedures.  |  |
| Total Halogenated<br>Organic Carbon<br>(TOX)            | Yes                           | Tested as State Requires.  |  |
| Cyanide   | No                            | Develop procedures.  |  |

#### Section 8.

### **Effective Communication**

Effective communication is a key element of emergency response. The effectiveness with which we communicate with each other, our customers, and the media can affect the outcome of the situation.

Developing partnerships with others in our local emergency response network, establishing relationships with our customers and the media, and creating communication tools such as fact sheets and media releases ahead of time will help us communicate efficiently and successfully during a crisis. For example, we will establish positive media relations before an emergency. We will make an effort to meet with reporters in our local area to share information about our water system and how they could receive information should an emergency occur. We will also contact our local emergency response organization and determine what assistance they can provide during an emergency.

During an emergency, the media, our customers, and others will have many questions. We will be prepared by organizing basic facts about the crisis and our water system. We will assemble a team of players quickly, including a main spokesperson and one or more people to answer customer calls.

We should expect our customers to be concerned or upset during a drinking water emergency. How we communicate with people is as important as the content of the information we are delivering. Body language, tone of voice, and expressions of sympathy all play an important role in how the information is received. When an emergency occurs, the news media may be onscene quickly, requesting information that will inevitably go to the public. We will appoint a spokesperson to communicate to the media. We will make sure the spokesperson is credible, accessible, in a position of authority, and trained in media interview techniques.

We will develop key messages to use with the media that are clear, brief, and accurate. We will make sure our messages are carefully planned and have been coordinated with local and state officials.

We will make sure field and office staff know how to deal with the media and questions from customers and the public. It may be necessary to establish protocols for both field and office staff to respectfully defer questions to the spokesperson.

Small water systems with a limited staff like ours should remember that our MassDEP, Drinking Water Program regional office is available to assist in developing and communicating messages to the media and the public. This can be especially helpful when staff need to focus on sampling or repairs.

#### **Communication Tips**

#### Do:

- Be prepared.
- Designate a spokesperson.
- Provide complete, accurate, and timely information.
- Tell the truth.
- Express empathy.
- Acknowledge uncertainty and offer to get back with more information later.
- Document your communications.

#### Do not:

- Speculate on the cause or outcome of an incident.
- Blame or debate.
- Minimize or brush off concerns of customers.
- Treat inquiries from interested parties as an annoying distraction from the real business of emergency response.

#### Example: Designate a spokesperson and alternates

| Spokesperson                   | Alternate 1                       | Alternate 2           |
|--------------------------------|-----------------------------------|-----------------------|
| James Mercer, Primary Operator | Linda Funk , Office Administrator | Peter Marks, Operator |

#### Example: Key messages

#### Develop possible messages in advance, and update them as the emergency develops:

- "We are taking this incident seriously and doing everything we can to resolve it."
- "Our primary concern is protecting our customers' health."
- "Another important concern is keeping the system operational and preventing damage."
- "What we know right now is....."
- "The information we have is incomplete. We will keep you informed as soon as we know more."
- "We have contacted state and local officials to help us respond effectively."
- "If you think you may be ill or need medical advice, contact a physician."
- "We are sampling the water and doing tests to determine whether there is contamination."

#### **Health Advisories**

During events when water quality and public health are in question, it may be necessary to issue a health advisory. The term "Health Advisory" means advice or recommendations to water system customers on how to protect their health when drinking water is considered unsafe. These advisories are issued when the health risks to the consumers are sufficient, in the estimation of the water system or state or local health officials, to warrant such advice.

Health advisories usually take the form of a drinking water warning or boil water advisory. Communication during these times is critical. MassDEP Drinking Water Program staff are committed to working closely with water systems to determine if an advisory is needed. Health advisories should always be well thought out and provide very clear messages. Health advisories can be challenging and time consuming for the water system and public health partners. They are also inconvenient for water system customers. However, these advisories are necessary in order to protect public health. In determining whether to issue a health advisory, there are many things to consider and questions to answer, usually in a short time period. This is another important reason that water systems should form partnerships in advance of these events. If there are well-formed partnerships, it will be much easier to obtain information, make decisions, and get the information out to the public.

MassDEP Drinking Water Program has put together a number of tools, including fact sheets, brochures, door hangers forms, and template to help water systems be prepared to issue a health advisory. We will learn about health advisories and how to issue them before we actually need to. It will make the process much smoother. We can learn more about the coliform health advisory packet by visiting the MassDEP Drinking Water Web site at: <a href="http://www.mass.gov/dep/water/drinking/systems.htm#emerresp">http://www.mass.gov/dep/water/drinking/systems.htm#emerresp</a>.

## Section 9. The Vulnerability Assessment

| System component              | Description and condition  | Vulnerability   | Improvements or mitigating actions | Security improvements   |
|-------------------------------|--|---|------------------------------------|---|
| Source                        | Long Pond Reservoir located southwest of Housatonic, off of Division Street. Long Pond has a storage capacity of 260 million gallons with a total surface area of 110 acres.   | The source is most vulnerable to contamination from above ground activities, as it is a surface source. | Area is inspected frequently.      |   |
| Storage                       | There is a 1.1 million gallon above-<br>ground concrete storage tank at Long<br>Pond. The tank was last inspected in<br>2014.  |   |                                    | Access to tank is secured.  |
| Treatment                     | There is a chlorination system at Long Pond in sound operating condition. Only sodium hypochlorite is used for treatment. The chlorinator is kept in excellent condition with spare parts on hand. All operating manuals and control systems diagrams as well as safety procedure manuals and personal protection equipment are located at the Long Pond Facility.   |   |                                    | Chemical Storage is secured, chlorinator is in secure alarmed facility. |
|                               | The pump-house and pumping facilities are in good condition.   |   |                                    | Facility is alarmed   |
| Computer and telemetry system | Computer and telemetry systems are located in the water systems main office. All systems are in good operating condition. The distribution system maps, treatment plant plans, water chemistry information, and schematic of treatment processes are stored in the office at 80 Maple Avenue, Great Barrington MA. The office is alarmed and computers backed up off premises. Originals are stored off premises | •   |                                    | Facility is alarmed   |

## Section 10.

## **Response Actions for Specific Events**

The following tables identify the assessment, set forth immediate response actions, define what notifications need to be made, and describe important follow-up actions.

A. Power outage

| Assessment        | System is vulnerable to power outages; does not have a generator but has a connection so that one can be rented and plugged into system if needed. Storage is able to supply the system for three days usage, or until power is restored. |
|-------------------|---|
| Immediate actions | Assess if outage will likely be more than 6 hours. If not, be on alert for changing conditions and monitor storage tank. If yes, complete the following:  |
| Notifications     | Power Co. – let them know public water system is experiencing an outage. Taylor Rental – obtain generator; customers – cut back on water usage.   |
| Follow-up actions | Turn off and return generator; return system to general power supply, inspect reservoir and pumping facilities, write report.   |

#### B. Transmission or main break

| Assessment        | HWW is vulnerable to line and main breaks.  |
|-------------------|---|
| Immediate actions | Turn off water, call "Dig Safe" and Wilkinson Excavating to repair.   |
| Notifications     | If necessary, notify customers whose water will be shut down.   |
| Follow-up actions | Turn water back on and check to make sure everything is working correctly. Notify customers water is back on. Write report. |

#### C. Service line break

| Assessment        | HWW 's customers' service lines are vulnerable to breaks as the majority are galvanized.                      |
|-------------------|---|
| Immediate actions | Assess Situation.   |
| Notifications     | Notify customer that service line is homeowner responsibility- provide copy of Company Rules and Regulations. |
| Follow-up actions | Monitor repair.   |
|                   |   |

D. Chlorine treatment equipment failure

| HWW is vulnerable to line treatment equipment failure.                                     |
|--|
| Install back-up pump, collect water samples and check residual levels and treat as needed. |
| If health issue, notify customer via reverse 911 system.                                   |
| Retest water and make sure levels are normal. Notify customers if needed.                  |
| _  |

E. Treatment equipment

| HWW is vulnerable to line treatment equipment failure.          |
|---|
| Assess situation.   |
| If health issue arises, notify customer via reverse 911 system. |
| Monitor.  |
|   |

F. Source pump failure

| Assessment        | Low vulnerability as we have a back-up pumps at our disposal.         |
|-------------------|---|
| Immediate actions | Make sure pump is working correctly.                                  |
| Notifications     | If health issue notify customer via reverse 911 system.               |
| Follow-up actions | Once original pump is fixed make sure everything is working properly. |

G. Microbial (coliform, E. coli) contamination

| Assessment        | Determine how widespread the contamination is and isolate the contamination.                |
|-------------------|---|
| Immediate actions | Turn up chlorinator and flush area affected/Sample/Monitor.                                 |
| Notifications     | Notify Mass DEP, notify customers via reverse 911 system.                                   |
| Follow-up actions | Test water to make sure no further consideration, notify customers, write emergency report. |

#### H. Chemical contamination

| Low vulnerability.   |  |  |  |
|--|--|--|--|
| Assess situation, isolate / contain.                         |  |  |  |
| Notify DEP & Officials and customers via reverse 911 system. |  |  |  |
| Monitor.   |  |  |  |
|  |  |  |  |

#### I. Vandalism or terrorist attack

| Assessment        | Housatonic Water has low vulnerability for vandalism or attacks. The office, pum station are alarmed; reservoir access gated. |  |  |  |
|-------------------|---|--|--|--|
| Immediate actions | Test water for contamination and follow procedures necessary.   |  |  |  |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system.  |  |  |  |
| Follow-up actions | Write emergency report.   |  |  |  |

J. Reduction or loss of water in the well

| Assessment        | n/a | - |  |
|-------------------|-----|---|--|
| Immediate actions |     |   |  |
| Notifications     |     |   |  |
| Follow-up actions |     |   |  |

K. Drought

| Assessment        | Housatonic Water has low vulnerability for drought as per historic data; storage tank holds five days of usage: provisions for interconnection with GBFD in place. |  |  |  |
|-------------------|--|--|--|--|
| Immediate actions | Monitor tank levels.   |  |  |  |
| Notifications     | Follow restriction of usage procedures via reverse 911 system.   |  |  |  |
| Follow-up actions | Make sure water levels are normal; notify customers and write emergency report.  |  |  |  |

L. Flood

| Assessment        | HWW has low vulnerable to flooding; however, its pumping station, Filters & CT Basin are located below Long Pond Dam.         |
|-------------------|---|
| Immediate actions | Assess situation /isolate affected facility components / take affected components off line to minimize disruption of service. |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system.  |
| Follow-up actions | Monitor.  |

M. Earthquake

| Assessment        | Housatonic Water has low vulnerability per historic data.                 |  |  |  |
|-------------------|---|--|--|--|
| Immediate actions | Assess facility/Monitor.  |  |  |  |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system if necessary. |  |  |  |
| Follow-up actions | Monitor.  |  |  |  |

N. Hazardous materials spill in vicinity of sources or system lines

| Assessment Determine how widespread the contamination is and isolate the co |  |
|---|--|
| Immediate actions   | Turn up chlorinator and flush area affected.   |
| Notifications   | Notify HazMat and Mass DEP. Notify customers via reverse 911 system.                         |
| Follow-up actions   | Test water to make sure no further contaminations. Notify customers, write emergency report. |

O. Electronic Equipment Failure

| Assessment        | Obtain manual pressure reading at tank.                                     |  |  |  |
|-------------------|---|--|--|--|
| Immediate actions | Determine tank level and run pump manually as needed.                       |  |  |  |
| Notifications     | n/a   |  |  |  |
| Follow-up actions | Once fixed take pump off manual and make sure everything resumes as normal. |  |  |  |

P. Cyber attack

| Assessment        | Housatonic Water has low vulnerability. Facility systems, while mostly electronic are not tied into a mainframe. |
|-------------------|--|
| Immediate actions | Monitor and assess.  |
| Notifications     | Notify DEP & Officials and customers via reverse 911 system if necessary.  |
| Follow-up actions | Monitor, Notify DEP & Officials and customers if necessary   |

Q. Other

| Assessment        |              |      | <br> |  |
|-------------------|--------------|------|------|--|
| Immediate actions | <del> </del> | <br> | <br> |  |
| Notifications     |              | <br> | <br> |  |
| Follow-up actions |              | <br> | <br> |  |

## Section 11. Alternative Water Sources

## Inter connect to adjacent water supply system

| Water systems within one-quarter mile of our system  | Feasibility of connecting   |
|--|---|
| There is access to another water system (Great Barrington Fire District) located approximately one-quarter mile from the Housatonic Water Works. | Housatonic Water Works has plans to install an interconnection with the Great Barrington Fire District in the future. |
|  |   |

## Alternate source(s) of water

| Alternative sources  | Names                                 | Phone        | Availability   | Is the water safe for drinking? |
|--|---------------------------------------|--------------|--|---------------------------------|
| Bottled Water<br>Supplier                                      | Berkshire<br>Mountain Spring<br>Water | 413 229-3997 | Up to 4,780 gals.<br>In 5 gal. jugs<br>within 24 hours | yes                             |
| Tanker trucks in<br>area available to<br>deliver bulk<br>water | Billy Kie's<br>Construction           | 413 232-4496 | 30,000 gallons in<br>less than 6 hours                 | no                              |
|  |                                       |              |  |                                 |
|  |                                       |              |  |                                 |

# Section 12. Curtailing Water Usage

## Curtailing water use:

| Actions   |
|---|
| Upon making the decision that curtailment is needed: Activate reverse 911 system to get the curtailment message out. Contact WSBS news to announce curtailment. |
| Message, monitor system usage and spot check meter usage. Continue message as long as curtailment is warranted.   |
|   |
|   |
|   |

# Section 13. Returning to Normal Operation

## Returning to normal operations

| Action                    | Description and actions  |  |
|---------------------------|--|--|
| disinfect the system      | Water System Operator James Mercer and support staff inspect all system facilities, ensure all water quality tests have been done and the system has been flushed and disinfected if necessary. Water system operator makes a report to the water system Operator. James Mercer makes decision on current condition of system. |  |
| Coordinate with           |  |  |
| MassDEP Drinking          | Water System Operator coordinates with MassDEP on system.  |  |
| Water Program             |  |  |
| Verification of           | Water System Operator  |  |
| Water Quality             | Water System Operator.   |  |
| INOTITY CHSTOMERS         | Water System Operator directs office secretary to notify customers via Reverse 911 program message and dictates letter to customers.   |  |
| Write emergency<br>report | Water System Operator writes report and sends copy to MassDEP.   |  |

# Section 14. Training and Rehearsals

## Training

| Identify staff position training needs and expectations. |   |  |  |  |  |
|--|---|--|--|--|--|
| Position   | Training needs and expectations.  |  |  |  |  |
| Water System Operator                                    | Emergency Response communications, planning, issuing health advisories, suspicious activity training. |  |  |  |  |
| Water System Operator                                    | Emergency response communications, emergency response planning, suspicious activity training.         |  |  |  |  |
| Field support- Water System Operator                     | Emergency response communications, suspicious activity training.                                      |  |  |  |  |
| Administrative support- Water System Operator            | Emergency Response communications, planning.  |  |  |  |  |

## **Emergency rehearsals**

Schedule for drills, tabletop exercises, and other ways to practice emergency response:

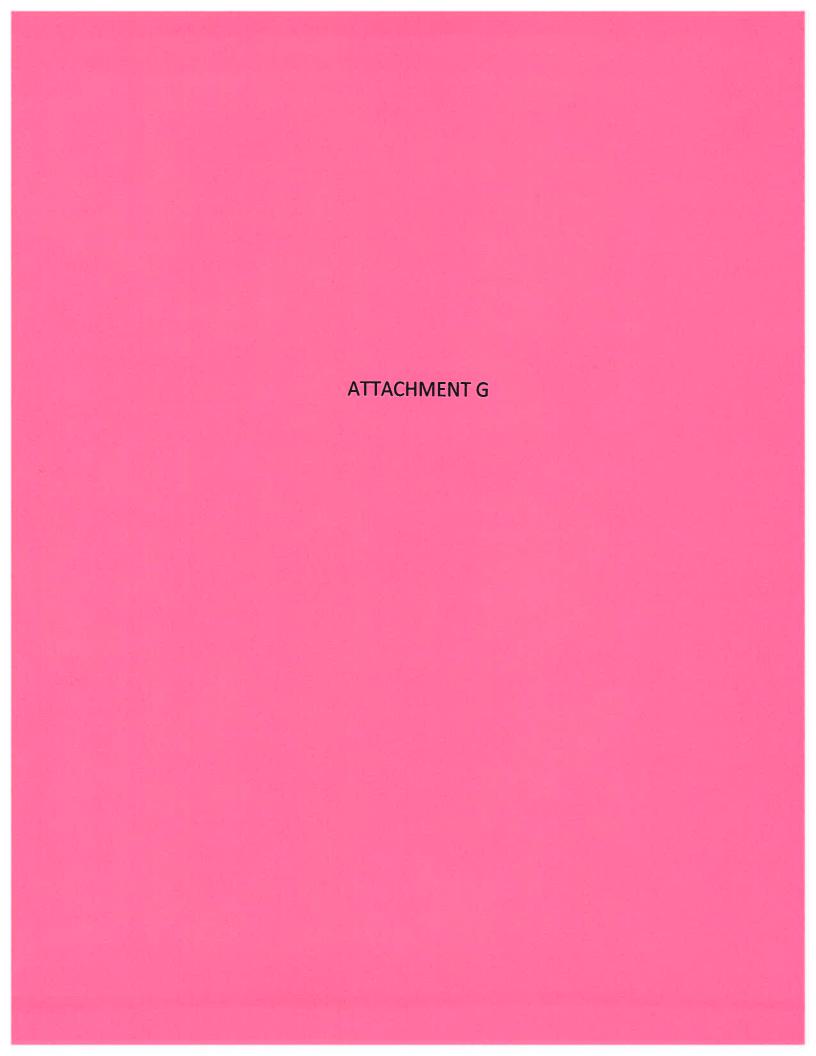
| Event                   | Description  | People and organizations involved           | Date            |
|-------------------------|--|---|-----------------|
| Rehearsal               | Conduct actual emergency drill   | Water system staff                          | unannounced     |
| On-site training drills | Conduct specific drills, communications, water Line breaks, sampling with a professional trainer | Water system staff and professional trainer | to be scheduled |

## Section 15. Plan Approval

## Plan approval

This plan is officially in effect when reviewed, approved, and signed by the following people:

| Name /Title                              | Signature/ Date |         |
|--|-----------------|---------|
| James J. Mercer<br>Water System Operator | Jour J. Menn    | 9/25/20 |



# **Hydrant Flushing**

Our hydrant flushing program will be conducted May 13-17 and May 20-24 during the hours of 9:00-11:00AM and 1:00-4:00PM. This is a highly beneficial and mandatory program for public water systems. It ensures our water quality is at its best and allows us to test our hydrants and mainline valves. We apologize for any reduction in pressure or discolored water that this may cause. The discolored water may not be aesthetically pleasing, but it will be temporary and it is not harmful, however we do advise you to take precautions regarding your laundry routine.

To help you plan accordingly, the following represents the anticipated flushing schedule and location.

#### **HYDRANT FLUSHING SEQUENCE:**

#### DAY 1

- 1. Christian Hill Road near 184 Christian Hill Road
- 2. North Plain Road near 249 North Plain Road
- 3. North Plain Road near 249 North Plain Road
- 4. North Plain Road near 257 North Plain Road
- 5. North Plain Road Frog Hollow
- 6. Crimson Lane blow off Crimson Lane
- 7. North Plain Road near 342 North Plain
- 8. Brookside blow off near Brookside Court
- 9. North Plain Road near 337 North Plain
- 10 North Plain Road near 364 North Plain
- 11. North Plain Road & Main near 380 North Plain Road
- 12. Linda Lane near 18 Linda Lane
- 13. Wyantenuck Street near 30 Wyantenuck Street
- 14. North Plain Road near 396 North Plain Road
- 15. North Plain Road near 410 North Plain Road
- 16. North Plain Road corner of Pixley Hill Road
- 17. Water Street blow off Water Street
- 18. Great Barrington Road near 276 Great Barrington Road
- 19. North Plain Road & Division Street near intersection
- 20. Division Street 70 Division Street
- 21. 63 Division Street Blow off
- 22. Park & Maple Street near 284 Park Street
- 23. Maple Street near 12 Maple Street
- 24. Walnut Street near 12 Walnut Street -blow off
- 25. Spruce Street hydrant
- 26. Park Street near 283 Park Street
- 27. Park Street near 243 Park Street
- 28. Park Street near 244 Park Street
- 29. Park Street near 229 Park Street
- 30. Park Street 115 Park Street; hydrant end
- 31. Grove Street near 223 Grove Street
- 32. Ramsdell Road across from last house/ blow off
- 33. Mountain Street near 8 Mountain Street
- 34. Park Street near 308 Park Street

- 35. Park Street near 316 Park Street
- 36. Park Street near 334 Park Street
- 37. Great Barrington Housing #1 Hydrant
- 38. Great Barrington Housing near #17 hydrant
- 39. Cone Avenue near 362
- 40. Park Street near 372 Park Street
- 41. Park Street near 386 Park Street
- 42. Park Street near 395 Park Street
- 43. Park Street near Barbieri
- 44. Park Street near Country Curtains/ 420 Park Street
- 45. VanDeusenville Road 16 VanDeusenville Road/ Lanoue
- 46. VanDeusenville Road 97 VanDeusenville Road
- 47. VanDeusenville Road 39 VanDeusenville Road
- 48. VanDeusenville Road 55 VanDeusenville Road
- 49. VanDeusenville Road 69 VanDeusenville Road/ Amerigas
- 50. VanDeusenville Road 89 VanDeusenville Road/Stortis
- 51. VanDeusenville Road 99 VanDeusenville Road
- 52. Front Street 117 Front Street
- 53. Front Street 133 Front Street
- 54. Oak Street near 319 Oak
- 55. Main Street near 1020 Main Street
- 55. South Street near 208 South Street
- 56. Main Street near 1045 Main Street
- 57. Forrest Street near 8 Forrest Street
- 58. Highland Street near 208 Highland Street
- 59. Highland Street near 213 Highland Street
- 60. Pleasant Street near 212 Pleasant/ Housatonic School
- 61. Meadow Street near 81 Meadow Street
- 62. Fire Station
- 63. Depot & Main Street
- 64. Main Street near 1100 Main
- 65. Route 183 at Town Line near house #66
- 66. Blow off in woods
- 67. Furnace District near 5 Furnace District
- 68. Apple Street near 3 Apple Street
- 69. Housatonic Court near 2 Housatonic Court
- 70. Furnace District at Route 183 near house #54
- 71. Route 183 near house #50/ blow off end of pipe
- 72. High Street near 34 High Street
- 73. High Street near 32 High Street
- 74. High Street near 21 High Street/ 2 hydrants
- 75. Hart Street near 32 Hart Street
- 76. Kirk & North Street near 32 Kirk Street
- 77. Kirk Street near 28 Kirk Street
- 78. Fairview Road near 5 Fairview Road
- 79. Prospect Street near 328 Prospect Street

# **Hydrant Flushing**

During this warm weather we have experienced increased flows and reports of roily water in some sections of our service area. In an effort to alleviate this situation we will be flushing hydrants between July 7-10 and July 13-17 during the hours of 9:00-11:00AM and 1:00-4:00PM.

There may be reductions in pressure and/or discolored water .The discolored water may not be aesthetically pleasing; however, we do advise you to take precautions regarding your laundry routine.

To help you plan accordingly, the following represents our anticipated flushing schedule.

near 184 Christian Hill Road

#### **HYDRANT FLUSHING SEQUENCE:**

1. Christian Hill Road

#### DAY 1

DAY 3

| 2.  | North Plain Road        | near 249 North Plain Road  |
|-----|-------------------------|----------------------------|
| 3.  | North Plain Road        | near 249 North Plain Road  |
| 4.  | North Plain Road        | near 257 North Plain Road  |
| 5.  | North Plain Road        | near 276 North Plain Road  |
| 6.  | Crimson Lane blow off   | end of street              |
| 7.  | North Plain Road        | near 342 North Plain       |
| DA  | Y 2                     |                            |
| 8.  | Brookside blow off      | near Brookside Court       |
| 9.  | North Plain Road        | near 337 North Plain       |
| 10  | North Plain Road        | near 364 North Plain       |
| 11. | North Plain Road & Main | near 380 North Plain Road  |
| 12. | Linda Lane              | near 18 Linda Lane         |
| 13. | Wyantenuck Street       | near 30 Wyantentuck Street |
| 14. | North Plain Road        | near 396 North Plain Road  |
| 15. | North Plain Road        | near 410 North Plain Road  |
| 16. | North Plain Road        | corner of Pixley Hill Road |
|     |                         |                            |

| 17. Water Street blow off              | end of street                    |
|--|----------------------------------|
| 18. Great Barrington Road              | near 276 Great Barrington Road   |
| 19. North Plain Road & Division Street | near intersection                |
| 20. Division Street                    | near 70 Division Street          |
| 21. Division Street                    | near 63 Division Street          |
| 22. Park & Maple Street                | near 284 Park Street             |
| 23. Maple Street                       | near 12 Maple Street             |
| 24. Walnut Street blow off             | near 12 Walnut Street            |
| DAY 4                                  |                                  |
| 25. Spruce Street                      | end of street                    |
| 26. Park Street                        | near 283 Park Street             |
| 27. Park Street                        | near 243 Park Street             |
| 28. Park Street                        | near 244 Park Street             |
| 29. Park Street                        | near 229 Park Street             |
| 30. Park Street                        | near 115 Park Street             |
| 31. Grove Street                       | near 223 Grove Street            |
| 32. Ramsdell Road                      | across from last house/ blow off |
| DAY 5                                  |                                  |
| 33. Mountain Street                    | near 8 Mountain Street           |
| 34. Park Street                        | near 308 Park Street             |
| 35. Park Street                        | near 316 Park Street             |
| 36. Park Street                        | near 334 Park Street             |
| 37. Great Barrington Housing           | near #1 Hydrant                  |
| 38. Great Barrington Housing           | near #17 hydrant                 |
| 39. Cone Avenue                        | near 362 Park Street             |
| 40. Park Street                        | near 372 Park Street             |
| DAY 6                                  |                                  |
| 41. Park Street                        | near 386 Park Street             |
| 42. Park Street                        | near 395 Park Street             |

| 43. Park Street            | near bridge                  |
|----------------------------|------------------------------|
| 44. Park Street            | near 420 Park Street         |
| 45. Van Deusenville Road   | near 16 Van Deusenville Road |
| 46. Van Deusenville Road   | near 97 Van Deusenville Road |
| 47. Van Deusenville Road   | near 55 Van Deusenville Road |
| 48. Van Deusenville Road   | near 69 Van Deusenville Road |
|                            |                              |
| DAY 7                      |                              |
| 49. Van Deusenville Road   | near 89 Van Deusenville Road |
| 50. Van Deusenville Road   | near 99 Van Deusenville Road |
| 51. Front Street           | near 117 Front Street        |
| 52. Front Street           | near 133 Front Street        |
| 53. Oak Street             | near 319 Oak Street          |
| 54. Main Street            | near 1020 Main Street        |
| 55. South Street           | near 208 South Street        |
| 56. Main Street            | near 1045 Main Street        |
| DAY 8                      |                              |
| 57. Forrest Street         | near 8 Forrest Street        |
| 58. Highland Street        | near 208 Highland Street     |
| 59. Highland Street        | near 213 Highland Street     |
| 60. Pleasant Street        | near 212 Pleasant Street     |
| 61. Meadow Street          | near 81 Meadow Street        |
| 62. Fire Station           | near fire station            |
| 63. Depot & Main Street    | near intersection            |
| DAY 9                      |                              |
| 64. Main Street            | near 1100 Main               |
| 65. Route 183 at Town Line | near house #66               |
| 66. Blow off in woods      | near Route 183               |
| 67. Furnace District       | near 5 Furnace District      |

68. Apple Street near 3 Apple Street

69. Housatonic Court near 2 Housatonic Court

70. Furnace District at Route 183 near house #54

**DAY 10** 

71. Route 183 near house #50/ blow off – end of pipe

72. High Street near 34 High Street

73. High Street near 32 High Street

74. High Street near 21 High Street/ 2 hydrants

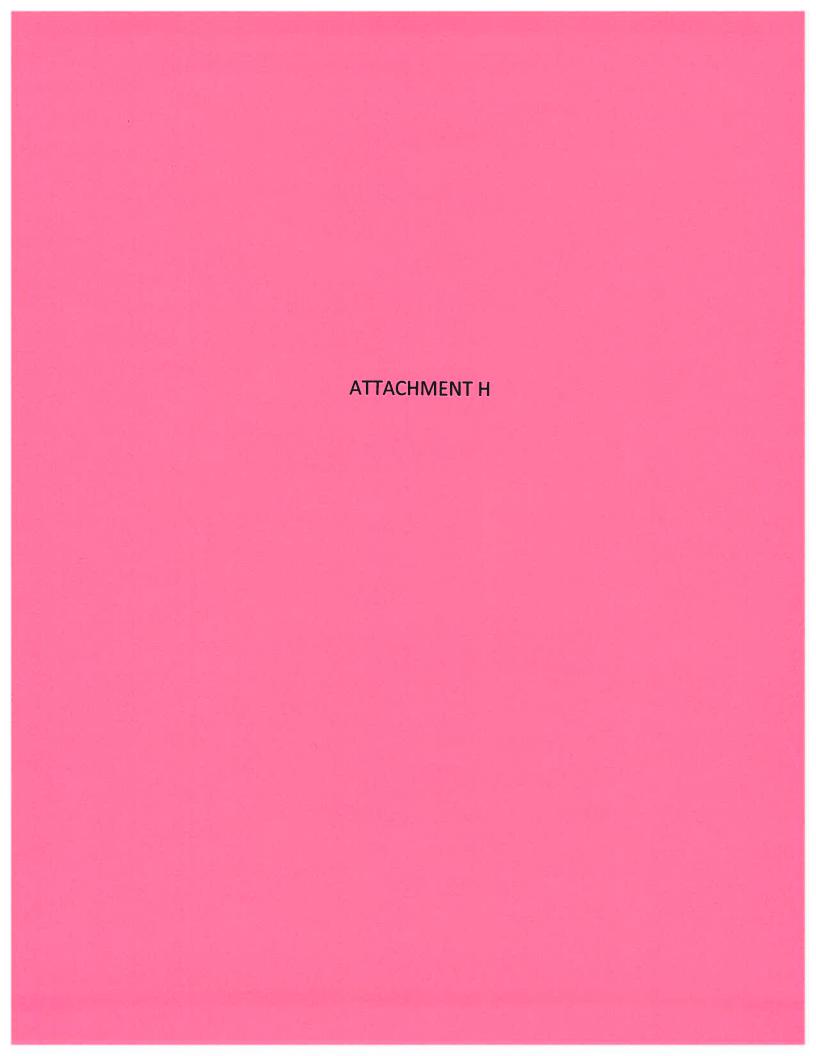
75. Hart Street near 32 Hart Street

76. Kirk & North Street near 32 Kirk Street

77. Kirk Street near 28 Kirk Street

78. Fairview Road near 5 Fairview Road

79. Prospect Street near 328 Prospect Street



For Immediate Press Release, July 30, 2018

PRESS RELEASE

HOUSATONIC ANNOUNCES WATER MAIN FLUSHING PROGRAM

August 1-7, 2018

Housatonic Water Works Company will be flushing water mains via hydrants throughout our distribution system from August 1 –August 7, 2018.

The purpose of system flushing is to remove accumulated sediment in our mains which has caused roily water in various sections of town. Flushing may result in temporary discoloration of the water, as well as reduced water pressure. The water discoloration is not a health risk as the Company continues to meet regulated disinfection levels.

The Company appreciates your patience as we work to maintain the quality of our drinking water. For additional information on roily water, please visit our web-site at <a href="mailto:housatonicwater@gmail.com">housatonicwater@gmail.com</a> and follow us on Facebook.









## WATER BILL

MONDAY - FRIDAY
OFFICE HOURS 9:00 A.M. - 5:00 P.M

Phone: (413) 528-1780

www.housatonicwater.com

ACCOUNT NUMBER:

SERVICE ADDRESS: 5 MOUNTAIN VIEW

STREET

#### **MESSAGE CENTER**

Flushing of water lines will be conducted April 10-24, excluding holiday. You may experience roily water during this time.

BILLING DATE: 04/03/2017

| SERVICE | SERVICE<br>FROM | PERIOD<br>TO | PREVIOUS<br>READING | PRESENT<br>READING | QUANTITY | AMOUNT DUE |
|---------|-----------------|--------------|---------------------|--------------------|----------|------------|
| WATER   | 03/01/2017      | 04/03/2017   | 1176000             | 1176000            | 0        | 40.94      |

Water Rate: \$40.94 for first 2500 gallons; minimum allowance 2,500 gallons per month Excess 2,500 gallons \$9.67 per 1000 gallons Complete Rates, Rules and Regulations are available at <a href="https://www.housatonicwater.">www.housatonicwater.</a>

| \$40.94 |
|---------|
| \$0.00  |
| \$40.94 |
|         |









## WATER BILL

**MONDAY - FRIDAY** OFFICE HOURS 9:00 A.M. - 5:00 P.M

Phone: (413) 528-1780 www.housatonicwater.com

ACCOUNT NUMBER

SERVICE ADDRESS: 5 MOUNTAIN VIEW STREET

#### **MESSAGE CENTER**

Flushing of water lines will be conducted May 21-31. You may experience roily water during that time.

BILLING DATE: 04/30/2018

| SERVICE | SERVICE<br>FROM | PERIOD<br>TO | PREVIOUS<br>READING | PRESENT<br>READING | QUANTITY | AMOUNT DUE |
|---------|-----------------|--------------|---------------------|--------------------|----------|------------|
| WATER   | 04/02/2018      | 04/29/2018   | 25383<br>B          | 27156              | 1773     | 40.94      |

Water Rate: \$40.94 for first 2500 gallons; minimum allowance 2,500 gallons per month Excess 2,500 gallons \$9.67 per 1000 gallons

Complete Rates, Rules and Regulations are available at www.housatonicwater.

| CURRENT    | \$40.94 |
|------------|---------|
| PAST DUE   | \$0.00  |
| AMOUNT DUE | \$40.94 |







**MONDAY - FRIDAY** OFFICE HOURS 9:00 A.M. - 5:00 P.M.

Phone: (413) 528-1780

www.housatonicwater.com

ACCOUNT NUMBER:

SERVICE ADDRESS: 5 MOUNTAIN VIEW STREET

## **MESSAGE CENTER**

Flushing will be conducted May 13-17 and May 20-24 during the hours of 9:00-11:00 a.m. and 1:00-4:00 p.m.







BILLING DATE: 05/01/2019

| SERVICE | FROM       | E PERIOD<br>TO | PREVIOUS<br>READING | PRESENT<br>READING | QUANTITY | AMOUNT DUE |
|---------|------------|----------------|---------------------|--------------------|----------|------------|
| WATER   | 03/31/2019 | 04/30/2019     | 48321               | 50019              | 1698     | 40.94      |

Water Rate: \$40.94 for first 2500 gallons; minimum allowance 2,500 gallons per month Excess 2,500 gallons \$9.67 per 1000 gallons Complete Rates, Rules and Regulations are available at www.housatonicwater.

| CURRENT    | \$40.94 |
|------------|---------|
|            |         |
| PAST DUE   | \$0.00  |
| AMOUNT DUE | \$40.94 |









## WATER BILL

**MONDAY - FRIDAY** OFFICE HOURS 9:00 A.M. - 5:00 P.M. Phone: (413) 528-1780

www.housatonicwater.com

ACCOUNT NUMBER:

SERVICE ADDRESS: 5 MOUNTAIN VIEW STREET

## **MESSAGE CENTER**

Housatonic Water Works 2019 Consumer Confidence Report is enclosed.

Flushing of mains will be conducted May 11-22. You may experience rolly water during that time.

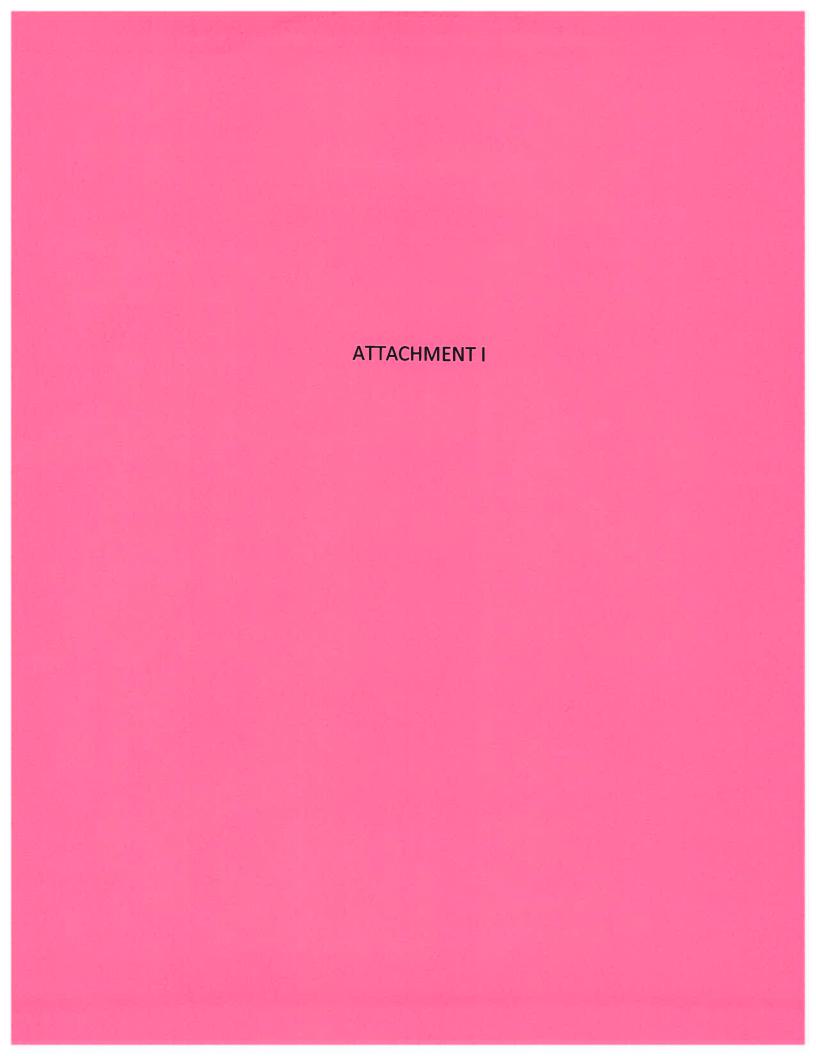
BILLING DATE: 04/30/2020

| SERVICE | SERVICE<br>FROM | PERIOD<br>TO | PREVIOUS<br>READING | PRESENT<br>READING | QUANTITY | AMOUNT DUE |
|---------|-----------------|--------------|---------------------|--------------------|----------|------------|
| WATER   | 03/30/2020      | 04/29/2020   | 73428               | 75687              | 2259     | 44.73      |
|         |                 |              |                     |                    |          |            |

Water Rate: \$44.73 for first 2500 gallons; minimum allowance 2,500 gallons per month Excess 2,500 gallons \$10.57 per 1000 gallons

Complete Rates, Rules and Regulations are available at www.housatonicwater.

|        | CURRENT    | \$44.73 |
|--------|------------|---------|
|        | PAST DUE   | \$0.00  |
| 300000 | AMOUNT DUE | \$44.73 |



## Housatonic Water Works Company 2015 - 2020 Capital Budget and Capital Expenditures

4,440

| 2 | O | 1 | 5 |
|---|---|---|---|
|   | v | - | • |

| BUDGET       | 25,000 |
|--------------|--------|
| ACQUISITIONS |        |
| Master Meter | 4.440  |

## 2016

| BUDGET | 80,000 |
|--------|--------|
| DODOLI | 00,000 |

### **ACQUISITIONS**

**Total Acquisitions** 

| Total Acquisitions   | 95,922 |
|----------------------|--------|
| 2016 Ford F-150      | 33,324 |
| Alkalinity Sensor    | 21,610 |
| SCADA Control System | 40,988 |
|                      |        |

## 2017

| BUDGET | 500,000 |
|--------|---------|
| BUDGET | 500,000 |

#### **ACQUISITIONS**

#### **Distribution Mains:**

| 253  |
|--|
| 253  |
| 965  |
| 202  |
| 420  |
| 390 (multi-year project completed in 2018) |
| 606  |
| 041  |
| 137  |
| 800  |
| 680 (traded in during 2019)                |
| 373 (multi-year project not completed yet) |
| 747  |
|  |

Acquired through Contribuiton in Aid of Construction:

183 Bridge Distribution Main 105,246

| 20 | 1 | 8 |
|----|---|---|
|----|---|---|

| 2010                           |          |  |
|--------------------------------|----------|--|
| BUDGET                         | 100,000  |  |
| 4.0.0.111.0.111.0.111          |          |  |
| ACQUISITIONS                   |          |  |
| Distribution Mains:            |          |  |
| Long Pond Road                 |          | (multi-year project completed in 2018) |
| 164 Meters                     | 69,556   |  |
| Chainsaw                       | 576      |  |
| 3 Stenner Pumps                | 2,175    |  |
| 3 Master Meter Analyzers       | 17,783   |  |
| SCADA System Improvements      | 11,744   |  |
| Corrosion Control Project      | 18,777   | (multi-year project not completed yet) |
| Total Acquisitions             | 129,288  |  |
|                                |          |  |
| 2019                           |          |  |
| BUDGET                         | 40,000   |  |
| ACQUISITIONS                   |          |  |
| 3 Hydrants                     | 7,546    |  |
| 39 Meters                      | 14,956   |  |
| Blower                         | 749      |  |
| Telephone System               | 3,224    |  |
| Hisco Pump                     | 2,551    |  |
| SCADA System Improvements      | 3,090    |  |
| Chlorine Tank                  | 930      |  |
| Stenner Pump                   | 966      |  |
| Corrosion Control Project      | 7,005    | (multi-year project not completed yet) |
| 2020 Ford F-150                | 44,398   | ( and year projection completed year)  |
| Less: Trade-in 2016 Ford F-150 | (20,000) |  |
| Total Acquisitions             | 42,164   |  |
|                                |          |  |
| 2020                           |          |  |
| BUDGET                         | 35,000   |  |
| ACQUISITIONS                   |          | Δ.                                     |
| Purification Equipment         | 8,391    | (work in process)                      |
| Water Qualit Control Project   | •        | (work in process)                      |
| Corrosion Control Project      |          | (multi-year project not completed yet) |
| Chlorine & pH Analyzer         | 3,275    | ( ) and project flot completed yet)    |
| Transducer                     | 979      |  |
| Total Acquisitions             | 39,148   |  |
| •                              |          |  |