

## James Kreidler

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**From:** Kathy Spofford <kspofford@townsend.ma.us>  
**Sent:** Monday, June 26, 2017 9:00 AM  
**To:** 'James Kreidler'; 'Paul Rafuse'  
**Subject:** FW: Records Request: DEP Survey

Hi Jim and Paul,  
Could you please respond to this request. I do not have the report so I cannot supply this. Please copy me on your responses.  
Thanks  
Kathy

Kathleen M. Spofford  
Town Clerk  
Town of Townsend  
272 Main Street  
Townsend, MA 01469  
978-597-1704  
FAX: 978-597-8135

This message (including any attachments) contains confidential information intended for a specific individual and purpose, and is protected by law. If you are not the intended recipient, you should delete this message. In Massachusetts, the term "public record" is broadly defined to include all documentary materials or data created or received by any officer or employee of any governmental unit, regardless of physical form or characteristics unless it falls under one of the statutory exemptions to the Public Records Law MGL c. 4, s. 7(26). Consequently, email is subject to the disclosure, retention and maintenance provisions as required by law. MGL c. 66.

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**From:** [kellymkelly@comcast.net](mailto:kellymkelly@comcast.net) [<mailto:kellymkelly@comcast.net>]  
**Sent:** Monday, June 26, 2017 7:28 AM  
**To:** [rao@townsend.ma.us](mailto:rao@townsend.ma.us)  
**Subject:** Records Request: DEP Survey

Today's Date: June 26, 2017  
Town Clerk  
Town of Townsend Massachusetts, 01469  
RE: Massachusetts Public Records Request

This is a request under the Massachusetts Public Records Law (M. G. L. Chapter 66, Section 10). I request that I be provided with the following:

1. A copy of the DEP Survey of the Townsend Water Department
2. Any e-mails exchanged between the town administrator, water department, Board of Selectmen or any other town employee regarding this report
3. A copy of an public records requests received from any town resident to receive a copy of this report, including requests sent to the town administrator, town administrator assistant, town clerk, or the assistant town clerk.

I recognize that you may charge reasonable costs for copies, as well as for personnel time needed to comply with this request. Electronic copies instead of paper would be acceptable. If you need me to supply a thumb-drive, let me know.

If you expect costs to exceed \$10.00 each, please provide a detailed fee estimate for EACH request before proceeding. The Public Records Law requires you to provide me with a written response within 10 business days. If you cannot comply with my request, you are statutorily required to provide an explanation in writing.

Please respond to this email when you receive it in your office so I may have a record of your receipt for my records. Sincerely,

Kelly Kelly  
5 Taurus Lane  
Townsend, MA 01469



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## James Kreidler

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**From:** James Kreidler <jkreidler@townsend.ma.us>  
**Sent:** Monday, June 26, 2017 10:30 AM  
**To:** 'Kathy Spofford'; 'Paul Rafuse'  
**Subject:** RE: Records Request: DEP Survey

Kathy,

I have 25 pages of responsive records and would require a half of an hour to locate, print and present.

25 pages @ \$.05 = \$1.25  
½ hour @ \$25/hr. = \$12.50

Total- \$13.75

Jim

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**From:** Kathy Spofford [mailto:kspofford@townsend.ma.us]  
**Sent:** Monday, June 26, 2017 9:00 AM  
**To:** 'James Kreidler'; 'Paul Rafuse'  
**Subject:** FW: Records Request: DEP Survey

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Town Clerk  
Town of Townsend  
272 Main Street  
Townsend, MA 01469  
978-597-1704  
FAX: 978-597-8135

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**From:** kellymkelly@comcast.net [mailto:kellymkelly@comcast.net]  
**Sent:** Monday, June 26, 2017 7:28 AM  
**To:** rao@townsend.ma.us  
**Subject:** Records Request: DEP Survey

Today's Date: June 26, 2017  
Town Clerk  
Town of Townsend Massachusetts, 01469

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Kelly Kelly  
5 Taurus Lane  
Townsend, MA 01469



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Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Matthew A. Beaton  
Secretary

Martin Suuberg  
Commissioner

June 9, 2017

Townsend Board of Water Commissioners  
540 Main Street  
West Townsend, MA 01474

Attn: Michael MacEachern, Chairman

Re: PWS City/Town: **Townsend**  
PWS Name: **Townsend Water Department**  
PWS ID#: **2299000**  
Program: **Sanitary Surveys**  
Enforcement #: **00002447**

Dear Public Water System Official:

Attached is a report (including a Notice of Noncompliance) summarizing the Sanitary Survey performed at the Townsend Water Department in Townsend on November 16 and December 1, 2016. This report identifies items found during the survey that the MassDEP has determined need to be corrected and the timeframe for completing them.

Please be advised that within 30 days of receipt of this inspection report, if your system has Table A – Violations and/or Table B – Deficiencies, you must return the enclosed response form, with a copy of the completed table(s) listing the date that the corrective action was/or will be taken and all other applicable documentation. Note that items with future dates require you to submit documentation of work at the time of completion.

If you have any questions regarding this Survey, please contact Emily Babbitt de Nicasio at (508) 849-4027 or [emily.nicasio@state.ma.us](mailto:emily.nicasio@state.ma.us).

Sincerely,

Robert A. Bostwick  
Section Chief  
Drinking Water Program

cc: James Kreidler, Town of Townsend, 272 Main Street, Townsend, MA 01469  
Townsend Board of Health, 272 Main Street, Townsend, MA 01469  
File Copy - DWP Sanitary Survey  
DWP Boston (Cover Letter)  
ecc: W:\WS\DWP Scanned Document Archive\DWP Sanitary Survey Reports\File Name  
Y:\DWPArchive\CERO\File Name  
Paul Rafuse, Townsend Water Department, [prafuse@townsend.ma.us](mailto:prafuse@townsend.ma.us)

File Name: Townsend-2299000-SS-ENF-00002447-2017-06-09

This 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](http://www.mass.gov/dep)

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## PUBLIC WATER SYSTEM SANITARY SURVEY

|                                  |                |                      |
|----------------------------------|----------------|----------------------|
| <b>Townsend Water Department</b> | <b>2299000</b> | <b>Townsend</b>      |
| <i>PWS Name</i>                  | <i>PWS ID#</i> | <i>PWS City/Town</i> |

|  |                           |
|--|---------------------------|
| Survey Date: November 17, 2016 and<br>December 1, 2016 | Report Date: June 9, 2017 |
| Surveyor: Emily Babbitt de Nicasio                     | Affiliation: CERO/DWP     |
| Person(s) Interviewed: Paul Rafuse                     | Title: Superintendent     |

### PUBLIC WATER SUPPLIERS:

This report includes a: "System Description", "Capacity Determination", "Statement of Zone I Compliance" a "Summary of Findings", and the "Evaluation Checklist":

- ☒ Table A – Violations referenced as Enforcement #: 00002447
- ☒ Table B – Deficiencies
- ☒ Table C – Recommendations
- ☒ Water Supplier Response and Certification Form (To be completed and returned within 30 days of receipt, if Table A and/or Table B items included in Summary of Findings)

During the course of the Sanitary Survey, MassDEP observed conditions in the source, facilities, equipment, operation, or maintenance of the PWS that are violation(s) of a regulation or statute and that jeopardize the delivery of pure and safe water to all consumers (hereafter collectively referred to as "violations"). All violations found at the PWS are listed in the attached Summary of Findings Table A, which is also a Notice of Noncompliance (NON) pursuant to M.G.L. c.21A, §16 and 310 C.M.R. 5.00.

Notwithstanding this NON, MassDEP reserves the right to exercise the full extent of its legal authority in order to obtain full compliance with all applicable requirements. Noncompliance with the terms of the NON may result in further enforcement, including the assessment of administrative penalties of up to \$25,000 for each day after the effective date of the NON during which each violation continues or is repeated, and/or the issuance of a unilateral administrative order requiring the necessary corrective action(s) within a reasonable time period. Noncompliance with the terms of such an order may also result in further enforcement, including the imposition of penalties of up to \$25,000 for each day after the effective date of the Order during which each violation continues or is repeated.

Note: Systems are not relieved of their responsibility for meeting regulatory requirements that may not be covered in the "Summary of Findings".

**SYSTEM CLASS**

Community - COM

**APPLICABLE REGULATIONS**

In addition to regulations that apply to all Public Water Systems, the PWS is subject to the following requirements under the Safe Drinking Water Act:

- ☒ Lead and Copper Rule (COM and NTNC systems only)
- ☒ Groundwater Rule
- ☐ Surface Water Treatment Rule (Surface water and Groundwater Under the Direct Influence of Surface Water)
- ☐ Disinfectant and Disinfection By-Product Rule (Disinfecting COM and NTNC)
- ☒ Consumer Confidence Reporting for Community systems

**SYSTEM DESCRIPTION**

The Townsend Water Department (TWD) is a community public water system (PWS) located in the Town of Townsend, Massachusetts. The TWD serves a drinking water population of approximately 6,400 persons per day via 1,999 service connections consisting of 1,897 residential, 61 commercial/business, 3 agricultural, 8 industrial, and 30 municipal/institutional/non-profits connections. It is important to note for purposes of determining residential gallons per capita day (RGCD), that there are 15 residential connections that account for 207 additional units due to multi-family residences. As reported in the 2016 ASR, the PWS uses an average of 0.58 million gallons per day (MGD), and maintains an interconnection on Proctor Road with the Pepperell Water Department (PWS ID# 2232000). All sources, service connections, and the interconnection are metered. The PWS has one pressure zone and pressure is maintained between 80 and 109 psi by the two water storage tanks and the one booster station.

***SOURCES & TREATMENT***

**Main Street Tubular Wellfield (01G) / Main Street Pump Station (01T)**

Well 01G is a vacuum primed tubular wellfield consisting of fifty two 2.5-inch diameter wells that range in depth from 30 to 60 feet, with approximately 50% of the wells unscreened. Constructed in 1934, and approved by MassDEP on April 3, 1996, the wellfield has a MassDEP-approved withdrawal rate of 0.579 MGD and a Zone I radius of 250 feet. Private residences, Route 119, and the septic system for the pump station, which formerly served as the main office for the TWD are all within the Zone I. (Note that the pump station has a sink, emergency shower, and analyzer flow through water only—there are no toilets at the pump station.)

The priming system for Well 01G consists of a holding tank and a 6.25 horsepower (Hp) Kohler vacuum pump that expels excess air from the holding tank as necessary. There are two centrifugal pumps on-site for withdrawal of water. The primary pump is a 50 Hp (350 gpm) centrifugal pump that will be replaced with an inline 50 Hp (400 gpm) vertical turbine pump

with VFD controller in 2017. A second, 60 Hp (500 gpm) centrifugal pump is available for when additional output is needed; however, since the addition of the new sources to the system, it is rarely used as the station only pumps approximately four to five hours a day (more in summer).

The Main Street Pump Station also serves as the fully automated treatment facility (2299000-01T) for corrosion control by chemical injection of Sodium Hydroxide (NaOH) for pH adjustment. The 25% NaOH feed system consists of a 1,600 gallon bulk storage tank with secondary containment, an Iwaki E-series chemical metering pump, a pH analyzer for continuous pH monitoring, and pH chart recorder. The chemical feed is flow paced, but not electrically interlocked with the flow meter, the well pump, or the pH analyzer. The pump station is fully alarmed through the SCADA system (alarms are described under *Treatment*), and a high pH alarm is programmed to shut down the well pump, which in turn creates a no flow situation that stops chemical addition. There is a hard-piped shower and eye wash and a float in the containment area to detect a chemical spill. This pump station also has a 30 gallon day tank and an injection quill for emergency disinfection using 12.5% NaOCl, but there is no chemical feed pump installed and NaOCl is not currently stored on site.

The Main Street Pump Station is equipped with a 20 Hp Continental natural gas fueled auxiliary pump, but not a back-up generator. Because the chemical feed equipment cannot operate during a power outage, the TWD does not utilize the Main Street Pump Station during emergencies. It should also be noted that the Main Street Pump Station no longer serves as the primary center for the PWS's alarm system network. The new SCADA system installed in 2015-2016 is based out of the TWD's main office at 540 Main Street.

#### **Cross Street Well (02G) / Cross Street Pump Station (02T)**

Well 02G is a 24-inch diameter gravel packed well drilled to a depth of 43 feet with 38 feet of casing and a 5-foot screen. Constructed in 1980, and approved by MassDEP on April 3, 2006, the well has a MassDEP-approved withdrawal rate of 0.439 MGD and a Zone I radius of 400 feet. Under normal operating conditions, water is withdrawn from Well 02G by a 30 Hp vertical turbine pump with a VFD controller (recently installed to replace the original Parco valve) that normally delivers about 250 gpm, but the pump station is currently offline due to elevated concentrations of iron and manganese. Two new test wells have been drilled and the TWD is contemplating adding treatment for iron and manganese removal.

The Cross Street Pump Station also serves as the fully automated treatment facility (2299000-02T) for corrosion control by chemical injection of 25% NaOH for pH adjustment. The 25% NaOH feed system consists of a 1,400 gallon bulk storage tank with secondary containment, an Iwaki E-series metering pump, a pH analyzer for continuous pH monitoring, and a pH chart recorder. The chemical feed is flow paced, but not electrically interlocked with the flow meter, the well pump, or the pH analyzer. The pump station is fully alarmed through the SCADA system (alarms are described under *Treatment*), and a high pH alarm is programmed to shut down the well pump, which in turn creates a no flow situation that stops chemical addition. There is a hard-piped shower and eye wash and a float in the containment area to detect a chemical spill. This pump station also has a 30 gallon day tank and an injection quill for emergency disinfection using 12.5% NaOCl, but there is no chemical feed pump installed and

NaOCl is not currently stored on site.

There is no back-up generator at the Cross Street Pump Station, but a propane-fueled auxiliary engine can operate the well pump (not the chemical feed pumps) during a power outage. Propane is stored on-site in an underground tank. Because the chemical feed equipment cannot operate during a power outage, the TWD does not generally utilize the Cross Street Pump Station during emergencies.

**Harbor Trace Well (03G) / Harbor Trace Pump Station (03T)**

Well 03G is a 24-inch diameter gravel packed well drilled to a depth of 60 feet with 50 feet of casing and a 10-foot screen. Constructed in 2006 and approved under New Source Approval (NSA) on November 2, 2007, the well has a MassDEP-approved withdrawal rate of 1 MGD and a Zone I radius of 400 feet. Water is withdrawn from Well 03G by a 75 Hp vertical turbine pump with a VFD controller that normally delivers about 450 gpm.

The Harbor Trace Pump Station also serves as the fully automated treatment facility (2299000-03T) for corrosion control by chemical injection of Sodium Hydroxide (NaOH) for pH adjustment. The 25% NaOH feed system consists of a 1,800 gallon bulk storage tank and a 120 gallon day tank with secondary containment, an Iwaki E-series chemical metering pump, a pH analyzer for continuous pH monitoring, and a pH chart recorder. The chemical feed is flow paced, but not electrically interlocked with the flow meter, the well pump, or the pH analyzer. The pump station is fully alarmed through the SCADA system (alarms are described under *Treatment*), and a high pH alarm is programmed to shut down the well pump, which in turn creates a no flow situation that stops chemical addition. There is a hard-piped shower and eye wash and there are sumps in the containment areas with floats to detect a chemical spill. The Harbor Trace Pump Station is also fully equipped for disinfection with 12.5% NaOCl. The NaOCl feed system consists of a 550 gallon bulk storage tank and a 65 gallon day tank with secondary containment, an LMI electronic pulse chemical dosing pump, and a Scientific, Inc. in-line chlorine analyzer for continuous monitoring; however, NaOCl is not currently being injected, and both of the NaOCl storage tanks are empty.

The development of the Harbor Trace Pump Station coincided with the 2007 Massachusetts Energy Management Pilot for Drinking Water and Wastewater Treatment Facilities, and TWD was chosen as one of 14 systems to participate in an evaluation of energy efficiency measures and renewable energy generation. This led to the receipt of federal stimulus funds used for the installation of a 40 kilowatt (kW), ground-mounted, solar photovoltaic system at the site. These solar panels, with Sollectra inverters, generate about 40% of the power required to operate the pumping station. There is also a hard-wired, natural gas generator on site for emergencies.

**Witches Brook Well 1 (04G) / Witches Brook Well 1 Pump Station (04T)**

Well 04G is a gravel packed well drilled to a depth of 60 feet located off of Ash Street. It was purchased (along with Well 05G) by the TWD from the Witches Brook Water System in July 2007, and Wells 04G and 05G were connected to the TWD on August 27, 2007. Well 04G has a MassDEP-approved withdrawal rate of 0.32 MGD and a Zone I radius of 400 feet. Under normal operating conditions, water is withdrawn from Well 04G by a 50 Hp vertical turbine



pump with a VFD controller (installed in September 2006) that normally delivers about 350 gpm, but the pump station was taken offline in 2011 due to aesthetic issues related to taste and odor. Just before it was slated to go back online in 2014, lightning struck the pump station and damaged the electrical equipment, including a surveillance system that was installed in 2009 to monitor activity around the area of both Wells 04G and 05G, where vandalism has posed challenges for the TWD. As of the date of this report, TWD cleaned the well screen and installed a new pump column, VFD, flow meter, pump motor bearings, and various electrical components (e.g., transformer and fuse boxes). The TWD is working with staff at MassDEP to reactivate the source.

The Witches Brook Well 1 Pump Station also serves as the fully automated water treatment facility for the source (2299000-04T) for corrosion control by chemical injection of Sodium Hydroxide (NaOH) for pH adjustment. The 25% NaOH feed system consists of a 500 gallon bulk storage tank with secondary containment, an Iwaki E-series metering pump, a pH analyzer for continuous pH monitoring, and a pH chart recorder. The chemical feed is flow paced, but not electrically interlocked with the flow meter, the well pump, or the pH analyzer. The pump station is fully alarmed through the SCADA system (alarms are described under *Treatment*), and a high pH alarm is programmed to shut down the well pump, which in turn creates a no flow situation that stops chemical addition. There is level sensor in the NaOH bulk tank with high (70 inches) and low (5 inches) alarms, a hard-piped shower and eye wash, and a float in the chemical containment area. This pump station does not have any NaOCl injection equipment, but there is a spare port to accommodate a chlorine injection quill.

A back-up generator at the Witches Brook Well 2 Pump Station (see description below) provides power to the Witches Brook Well 1 Pump Station during emergencies.

#### **Witches Brook Well 2 (05G) / Witches Brook Well 2 Pump Station (05T)**

Well 05G is a gravel packed well drilled to a depth of 58 feet located due east of Well 04G. Well 05G has a MassDEP-approved withdrawal rate of 0.39 MGD and a Zone I radius of 400 feet. Water is withdrawn from Well 05G by a 50 Hp vertical turbine pump with a VFD controller (installed around 2010 or 2011) that normally delivers about 350 gpm.

The Witches Brook Well 2 Pump Station also serves as the fully automated water treatment facility (2299000-05T) for corrosion control by chemical injection of Sodium Hydroxide (NaOH) for pH adjustment. The 25% NaOH feed system consists of a 500 gallon bulk storage tank with secondary containment and an Iwaki E-series metering pump. Because the pH analyzer at Witches Brook Well 1 Pump Station is fed by the 100-foot tap, and there is only one common outlet for the two Witches Brook Wells (a second outlet for Well 05G is closed), this pH analyzer and chart recorder corresponds to Well 05G, as well. The chemical feed is flow paced, but not electrically interlocked with the flow meter, the well pump, or the pH analyzer. The pump station is fully alarmed through the SCADA system (alarms are described under *Treatment*), and a high pH alarm is programmed to shut down the well pump, which in turn creates a no flow situation that stops chemical addition. There is level sensor in the NaOH bulk tank, a hard-piped shower and eye wash, and a float in the chemical containment area. This pump station does not have any NaOCl injection equipment, but there is a spare port to accommodate a chlorine injection quill.

The Witches Brook Well 2 Pump Station is equipped with a hard-wired, natural gas generator that can power both Witches Brook pump stations in an emergency. As of the time of this survey, this generator needed to be manually started, but electrical upgrades at the Witches Brook Well 1 Pump Station will solve this problem as soon as Well 04G is reactivated.

#### *BOOSTER STATION*

There is one booster station within the PWS known as the West Meadow Booster Station, which is located off of West Meadow Road. The booster station is equipped with two 20 Hp Grundfos booster pumps, one 7.5 Hp Grundfos jockey pump, and an Amtrol Therm-X-Trol hydropneumatic tank, which maintains adequate pressure to the West Meadow Estates and other new homes on the street. The booster station has a hard-wired, propane generator for emergencies. Propane is stored above ground just outside the booster station. A transfer switch will automatically start the generator if there is a power failure.

#### *WATER STORAGE FACILITIES*

The PWS maintains two water storage tanks: the Highland Street Storage Tank and the Fitchburg Road Storage Tank. The Fitchburg Road Storage Tank is a 0.5 MG riveted steel standpipe constructed in 1934. The water level in the Fitchburg Road Storage Tank controls the well pumps, which all operate together (i.e., all on or all off) with a 10 minute lag between them during start-up. The “wells on” set point is 28 feet, and the “wells off” set point is 32 feet. Assuming all source pump stations are online, the start-up sequence for the wells is: (1) the Harbor Trace Well (03G), (2) the Main Street Tubular Wellfield (01G), (3) the Cross Street Well (02G), and (4) one of the Witches Brook wells (either 04G or 05G, which alternate). The water level is measured by a level transducer in the tank that communicates with the SCADA system via a level transmitter. High and low tank alarms are 33.5 feet and 20 feet, respectively. The tank has a Gridbee mixing system with integrated chlorine injection capability. A 4-inch overflow pipe runs along the outside of the tank wall and discharges approximately 24 inches above the ground to rip rap. A locked vault on the east side of the tank contains inlet/outlet piping and a smooth-nosed sample tap that is drawn off the inlet/outlet piping for bacteria sampling.

The Highland Street Storage Tank is a 1 MG concrete storage tank constructed in 1978. An altitude valve controls flow into the tank; the altitude valve opens when the water level in the tank drops to 15.5 feet and closes when it reaches 18.5 feet. A level transmitter is also connected to the SCADA system, and high and low tank alarms are programmed at 12.5 feet (low) and 19.75 feet (high). The tank has a Tideflex mixing system on a common inlet/outlet pipe with flaps that are closed while filling and open while emptying. An overflow pipe runs along the inside of the tank wall and discharges approximately 100 feet south of the tank via two 4-inch plastic pipes. A locked vault adjacent to the tank access road contains inlet/outlet piping, the altitude valve, a day tank and injection quill for emergency chlorination, and a smooth-nosed sample tap that is piped from the tank itself (not drawn off the inlet/outlet piping) for bacteria sampling.



## CAPACITY DETERMINATION

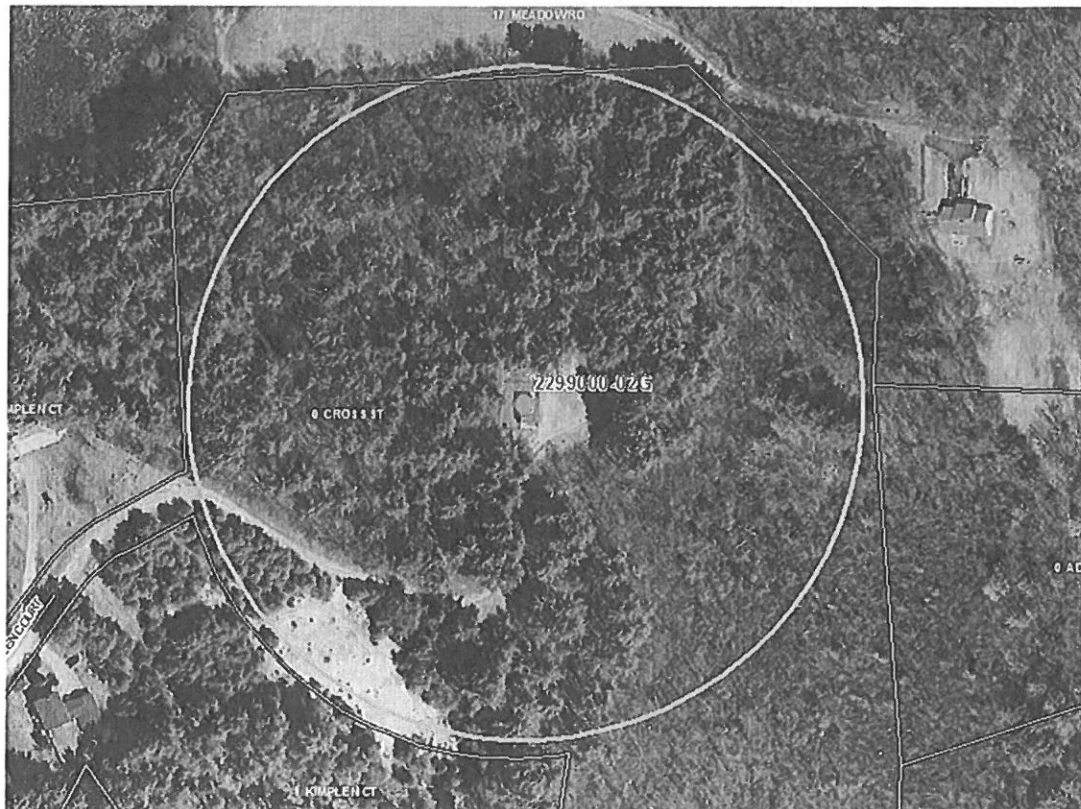
Capacity is the ability of a public water system to plan for, achieve, and maintain financial, managerial and technical compliance with applicable federal and state drinking water standards for the foreseeable future. Capacity also requires the demonstration of effective controls in all three areas.

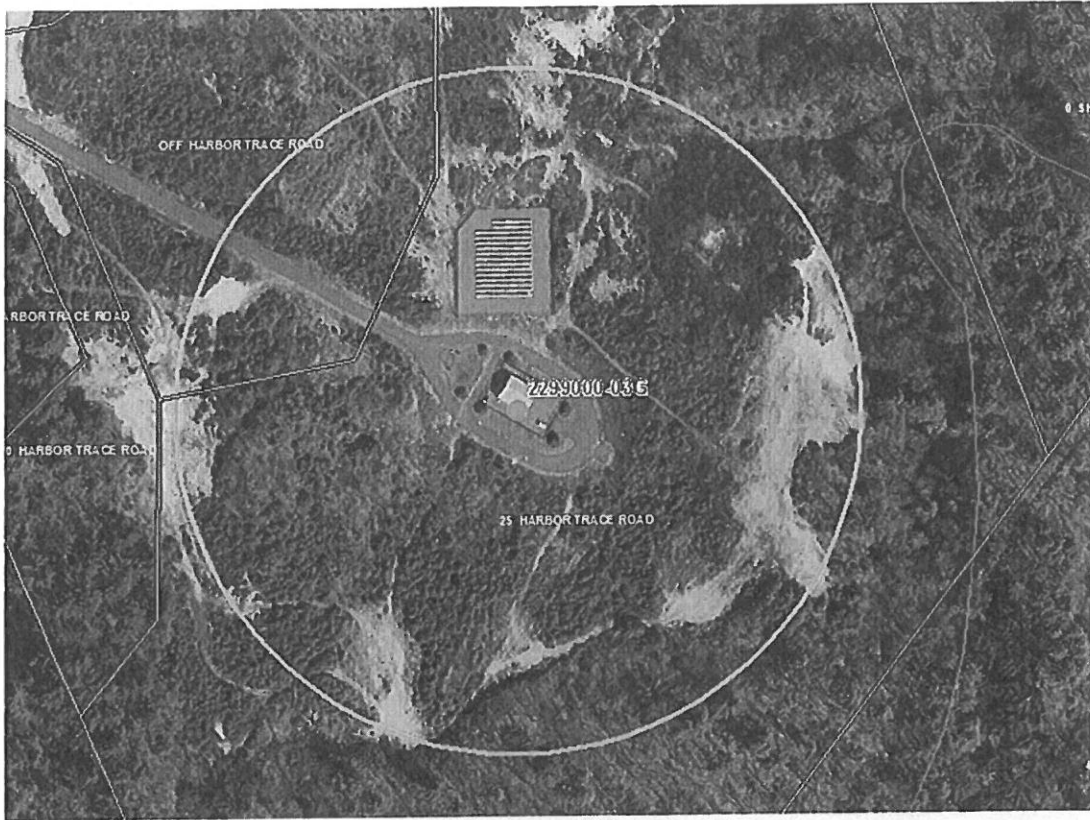
**CONDITIONAL CAPACITY** - Systems with conditional capacity currently comply with a majority of MassDEP drinking water regulations but have issues that need to be improved.

## STATEMENT OF ZONE I COMPLIANCE

Refer to DEP BRP Policy #94-03 Implementation of Zone I Requirements  
<http://www.mass.gov/eea/docs/dep/water/laws/numeric/9403a.pdf>

|   |   |
|---|---|
| <input checked="" type="checkbox"/>                     | The PWS is currently in compliance with Zone I requirements for the following Wells: <b>2299000-02G</b> and <b>2299000-03G</b> . Please be advised that any modifications to the Zone I or activities within are subject to MassDEP approval.   |
| <input checked="" type="checkbox"/>                     | Please note that the PWS lacks ownership or control of the required Zone I protective radii around Wells: <b>2299000-01G</b> (250 feet), <b>2299000-04G</b> (400 feet), and <b>2299000-05G</b> (400 feet). Pursuant to 310 CMR 22.21(3)(b), 310 CMR 22.21(1)(a) and 310 CMR 22.04(1), the owners or designated representative of the PWS must notify MassDEP prior to a change in facility ownership, or a change in landuse within the Zone I, or any change that can impact the quality or quantity of the drinking water supply. The owners or designated representative of the PWS must obtain MassDEP approval prior to modifying or expanding the facility, or replacing any well or source. MassDEP will not approve any proposed modifications or expansions resulting in water withdrawals that exceed the designated MassDEP approved pumping rate.   |
| <input checked="" type="checkbox"/>                     | The owners or designated representative of the PWS are hereby notified that Wells: <b>2299000-01G</b> , <b>2299000-04G</b> , and <b>2299000-05G</b> are in non-compliance with MassDEP's requirement, 310 CMR 22.21(3)(b), that Zone I activities be limited to those directly related to the provision of public water or will have no significant adverse impact on drinking water quality. The identified source(s) will remain in non-compliance status until the non-conforming activities are removed from the Zone I. Pursuant to 310 CMR 22.04(1) and 310 CMR 22.21(1)(a), the owners or designated representatives of the PWS must notify MassDEP prior to a change in facility ownership or a change in land use within the Zone I, or any change that can impact the quality or quantity of the drinking water supply. The owners or designated representative of the PWS must obtain MassDEP approval prior to modifying or expanding the facility, or replacing any well or source. MassDEP will not approve any proposed modifications or expansions resulting in water withdrawals that exceed the designated MassDEP approved pumping rate. |
| Non-conforming activities documented within the Zone I: | <b>01G – Septic system, road, houses, driveways, lawns</b><br><b>04G – Road</b><br><b>05G – Road</b>  |





## SUMMARY OF FINDINGS NOTICE OF NONCOMPLIANCE ENF# 00002447

### TABLE A – VIOLATIONS

Please note that this document is also a Notice of Noncompliance (NON) pursuant to M.G.L. c.21A, §16 and 310 C.M.R. 5.00. Within 30 days of receipt of the NON and Summary of Sanitary Survey, you must fill-in the corrected date(s) and submit this form to MassDEP and the attached WATER SUPPLIER RESPONSE AND CERTIFICATION FORM, including all applicable attachments.

|    | Citation   | TABLE A - CORRECTIVE ACTION   | GWR<br>Significant<br>Deficiency† | Action<br>Due<br>Date* | Completion<br>Date** |
|----|--|---|-----------------------------------|------------------------|----------------------|
| 1. | 310 CMR<br>22.22(2),<br>22.22(3), &<br>22.22(9)        | Implement TWD's Cross-Connection Control Program (CCCP) and cross-connection policies as described in Section 19, <i>Cross Connection Control Program Rules &amp; Regulations</i> , of the Townsend Water Department Rules, Regulations and Rates to ensure that 18 Highland Street (Evan's on the Common) is surveyed for cross-connections. Submit documentation to MassDEP that the facility was surveyed and properly protected or that other appropriate measures were taken in accordance with TWD's CCCP. (XC-5) | N                                 | 30 SEP<br>2017         |                      |
| 2. | 310 CMR<br>22.22(3)(d)                                 | Develop a master cross-connection control device list that includes the facility name and address; facility type; degree of hazard; device type; make, model number, and size; and testing/repair history for all cross connection control devices within the PWS. Submit certification to MassDEP that TWD has developed its own master cross-connection control device list. (XC-10)  | N                                 | 30 SEP<br>2017         |                      |
| 3. | 310 CMR<br>22.22(2),<br>22.22(3)(h), &<br>22.22(13)(e) | Implement TWD's CCCP and cross-connection policies as described in Section 19, <i>Cross Connection Control Program Rules &amp; Regulations</i> , of the Townsend Water Department Rules, Regulations and Rates to ensure that all RPBPs, DCVAs, and PVBs that failed in 2016 are repaired and retested. Submit certification to MassDEP that all devices were repaired and retested or that other appropriate measures were taken in accordance with TWD's CCCP. (XC-11)  | N                                 | 30 SEP<br>2017         |                      |
| 4. | 310 CMR<br>22.22(3)(f)                                 | Establish and maintain a cross connection education component for residential users that is distributed annually, e.g., through the annual Consumer Confidence Report (CCR). Submit a copy to MassDEP. (XC-14)  | N                                 | 30 JUN<br>2017         |                      |
| 5. | 310 CMR<br>22.04(14) &<br>Guidelines<br>Chapter 6      | Develop a written alarm and interlock testing program and submit to MassDEP. (Attachment 1)   | N                                 | 30 SEP<br>2017         |                      |



### TABLE B – DEFICIENCIES\*\*\*

MassDEP has made note of several items that do not reflect good water system practice; and, if left unresolved, could lead to problems that are more serious and may be elevated to violations in subsequent surveys. Due to the item's importance an action due date has been established.

|    | Citation   | TABLE B - CORRECTIVE ACTION .  | GWR<br>Significant<br>Deficiency | Action<br>Due<br>Date* | Completion<br>Date** |
|----|--|--|----------------------------------|------------------------|----------------------|
| 1. | 310 CMR<br>22.04(13) &<br>Guidelines<br>Chapter 12 | Update the Emergency Response Plan (ERP) in accordance with 310 CMR 22.04(13) and Chapter 12 of the <i>Guidelines for Public Water Systems</i> . Submit a revised ERP checklist to MassDEP. (R-4)  | N                                | 30 SEP<br>2017         |                      |
| 2. | 310 CMR<br>22.21(2)(a)8                            | Determine the discharge location and Underground Injection Control permit status for all PWS pump station floor drains. (S-4, S-5, and B-12)   | N                                | 30 SEP<br>2017         |                      |
| 3. | 310 CMR<br>22.04(14) &<br>Guidelines<br>Chapter 6  | Submit to MassDEP a schedule for installing/programming the required interlocks such that all chemical feed pumps are electrically locked out (de-energized) when the well pump is off, no flow is detected by the flow meter/flow switch, or the pH analyzer is in alarm. (T-10)  | N                                | 30 SEP<br>2017         |                      |
| 4. | 310 CMR<br>22.04(7) &<br>Guidelines<br>Chapter 8   | Begin documenting monthly tank inspections on the <i>PWS Monthly Storage Tank Inspection Log</i> . (AT-6)  | N                                | 30 SEP<br>2017         |                      |
| 5. | 310 CMR<br>22.04(7) &<br>Guidelines<br>Chapter 8   | Complete the remaining recommendations from the 2012 Highland Street Tank inspection report (i.e., blast/recoat the internal steel components of the overflow pipe), and have the tank cleaned and re-inspected. Submit the 2017 inspection report to MassDEP with a timeline for implementing any identified recommendations. (AT-7)  | N                                | 30 NOV<br>2017         |                      |
| 6. | 310 CMR<br>22.04(7) &<br>Guidelines<br>Chapter 8   | Complete the remaining recommendations from the 2014 Fitchburg Road Tank inspection report (i.e., seal the roof-shell joint), and have the tank cleaned and re-inspected. Also ensure that the new overflow is appropriately screened and discharges downward between 12 and 24 inches above grade. Submit the 2017 inspection report to MassDEP with a timeline for implementing any identified recommendations. (AT-7) | N                                | 30 NOV<br>2017         |                      |
| 7. | 310 CMR<br>22.19(6)                                | Submit to MassDEP a revised distribution map that reflects water main extensions and changes to RS 009, UR 9a, and DR 9b. In addition to coliform sampling locations, the plan must include all sources, pump stations, storage tanks, water lines (color-coded by size/material), pressure zones, and hydrants/valves. (D-3 & TC-6)   | N                                | 30 NOV<br>2017         |                      |
| 8. | 310 CMR<br>22.19(1)                                | Submit a corrective action plan to MassDEP that addresses the potential for low/negative pressures in the West Elm/Jonathan Lane loop when the Main Street Pump Station is offline. (D-6)  | N                                | 30 SEP<br>2017         |                      |

|     | Citation                                | TABLE B - CORRECTIVE ACTION   | GWR Significant Deficiency | Action Due Date* | Completion Date** |
|-----|---|---|----------------------------|------------------|-------------------|
| 9.  | 310 CMR 22.04(7) & Guidelines Chapter 9 | Begin implementing TWD's 2005 unidirectional flushing program, which provides for annual system-wide flushing. Submit certification to MassDEP that TWD is flushing the entire distribution system and exercising all gate valves each year. (D-8 & D-12) | N                          | 31 DEC 2017      |                   |
| 10. | 310 CMR 22.04(7) & Guidelines Chapter 9 | Develop and implement a hydrant maintenance program in accordance with ANSI/AWWA G200-09. Submit certification to MassDEP that a program was developed and is being implemented. (D-16)   | N                          | 31 DEC 2017      |                   |
| 11. | 310 CMR 22.22(3)                        | Submit to MassDEP a <i>Request for Public Water System Authorization to Delegate, Sub-delegate, Contract, or Sub-contract Cross Connection Surveyors Responsibilities</i> . (XC-4)  | N                          | 30 SEP 2017      |                   |
| 12. | 310 CMR 22.16A(22)                      | Begin reporting sodium concentrations in the unregulated contaminants table of the annual CCR. (WQ-3)   | N                          | 30 JUN 2017      |                   |

\* If the time required to complete the action is greater than 3 months, submit quarterly progress reports and anticipated completion date.

\*\* If projected completion dates are included in the table, documentation must be submitted to the Department upon completion of all corrective actions.

\*\*\* MassDEP reserves the right to exercise its Order authority under M.G.L. Chapter 111, Section 160, or to take other appropriate action as permitted by law, in order to prevent the pollution and to secure the sanitary protection of the water supply and to ensure the delivery of a fit and pure water supply to all consumers, including without limitation if sufficient progress to meeting a recommended deadline is not achieved.

## TABLE C - RECOMMENDATIONS

MassDEP has included a list of recommendations you are encouraged to evaluate and follow in order to improve your system's ability to provide safe and pure drinking water. Failure to act on these recommendations may be elevated to deficiencies in subsequent surveys.

|    | Citation/Reference (if applicable)       | TABLE C – RECOMMENDATIONS   |
|----|--|---|
| 1. | 310 CMR 22.04(7) & Guidelines Chapter 7  | MassDEP recommends that the Water Supplier install a hard wired back-up generator at the TWD main office (540 Main Street) where the principal SCADA equipment is located. MassDEP also recommends that hard-wired back-up generators or prepared electrical connections be installed at the Main Street Pump Station and the Cross Street Pump Station. (OM-7, OM-9) |
| 2. |  | MassDEP recommends that the Water Supplier install carbon monoxide detectors in all pump houses that have an indoor emergency generator, auxiliary pump, or auxiliary pump motor. (OM-7)  |
| 3. | 310 CMR 22.04(7) & Guidelines Chapter 7  | MassDEP recommends that the Water Supplier test all back-up generators and auxiliary pumps/motors under load at least twice per year. (OM-8)  |
| 4. | 310 CMR 22.04(7) & Guidelines Chapter 11 | MassDEP recommends that the Water Supplier create an electronic system for logging customer complaints that captures the date, name, address, and nature of the complaint to readily identify trends and common issues. (R-8)   |

|    | Citation/Reference<br>(if applicable) | TABLE C – RECOMMENDATIONS  |
|----|---------------------------------------|--|
| 5. |                                       | MassDEP recommends that the Water Supplier increase staffing to meet immediate operational needs and to provide for long-term succession planning. (O-1)   |
| 6. |                                       | MassDEP recommends that the Water Supplier post water supply protection signs near all sources. (S-9)  |
| 7. | 310 CMR 22.26                         | In the event that a sample collected from an in-service well is determined to be positive for E.coli, MassDEP relies on information on Groundwater Rule (GWR) Forms A and B to make a determination as to what action(s) the Water Supplier must take in response to the test result. In most cases, MassDEP must determine whether a Boil Water Advisory is required; therefore, MassDEP recommends that the Water Supplier complete GWR Form A. (TT-1) |

† **GWR Significant Deficiencies:** The EPA, as part of the Groundwater Rule, required states to identify specific Significant Deficiencies that are related to the potential for fecal contamination of the water system. Significant deficiencies, when identified at a PWS that is subject to the Groundwater Rule, are regulated under the treatment technique requirements of the GWR. A PWS has 120 days to correct any significant deficiencies after notification from the state of their existence. If the deficiencies cannot be corrected within 90 days, then the PWS must enter into a MassDEP-approved correction action plan, with intermediate timelines for compliance. Failure to have an approved corrective action plan in place within 120 days or to comply with the timelines contained within the corrective action plan, constitutes a treatment technique violation, as detailed in 310 CMR 22.26(4). If a system fails to correct any identified significant deficiencies, then the PWS will be required to provide an alternate source of water, eliminate the source of contamination, or provide treatment that reliably achieves at least 4-log inactivation of viruses.

## **WATER SUPPLIER RESPONSE AND CERTIFICATION FORM**

**Within 30 days of receipt of this inspection report**, you must complete and submit this form if your system has Table A – Violations and/or Table B – Deficiencies. Attach a copy of the completed table(s) listing the date that the corrective action was/or will be taken and all other applicable documentation (310 CMR 22.04(12)). **Note that items with future dates require you to submit documentation of work at the time of completion. If a specific form of documentation is not identified, an updated Summary of Findings Table, letter, or email addressed to the inspector that the deficiency has been corrected may be used.**

**The following corrective actions listed in the Summary of Findings Table A and/or Table B have 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 Summary of Findings.
- I have listed the completion date for each item within the table(s).
  - 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 Summary of Findings.
- I have listed the actual or anticipated compliance date for each item within the table(s).
  - 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.
- 
- ☐ My system is **UNABLE** to comply with some or all of the corrective actions within the timeframes specified in the Summary of Findings. I understand that my system may be subject to further enforcement.
- An explanation is attached.
- 

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge  
Water Commissioner, Owner, Owner Representative or Other Responsible Party:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ Title: \_\_\_\_\_

*Return this form, a copy the Summary of Findings and all attachments to:*

**MassDEP  
BWR Drinking Water Program  
8 New Bond Street  
Worcester, MA 01606  
Attention: Emily Babbitt de Nicasio**



## EVALUATION CHECKLIST

### SYSTEM MANAGEMENT / OPERATION

|   |   |   |
|---|---|---|
| OM-1  | Who is responsible for the day-to-day management of the PWS?  | Paul Rafuse   |
| OM-2  | Who is the operator's primary contact at the PWS?   | Paul Rafuse   |
| OM-3  | Has a PWS Affidavit been recorded at the Registry of Deeds?   | NA - Municipal  |
| OM-4  | Does the PWS have a Master, Capital Improvement or Asset Management Plan?   | Yes   |
| OM-5  | If yes, what is the date of the Plan?   | 2003  |
| OM-6  | Is there a Reserve Account in case of unbudgeted expenses?  | Yes   |
| OM-7  | Does the PWS have emergency back-up power available to operate critical system components?  | Comment   |
| OM-8  | If on-site generator(s): how frequently are they tested under load?   | Never (Table C.3)   |
| OM-9  | If contracted/plug-in generator, is there a prepared electrical connection for the generator?   | Comment   |
| OM-10   | Does the PWS meet the redundancy requirements in 310 CMR 22.21(3)(a)?   | Yes - Storage   |
| OM-11   | If the PWS intends to use bulk water to comply with the redundancy requirements or other emergency conditions, do they have the necessary infrastructure and procedures to receive bulk water deliveries? | NA - Meets Redundancy   |
| OM-12   | Is all critical infrastructure locked or sufficiently secured (e.g. pump house, well vault, chemical treatment building)? <sup>GWR-20</sup>   | Yes   |
| OM-13   | Is any part of the PWS operated seasonally where the water mains are drained or de-pressurized?   | No  |
| OM-14   | If yes, are there written startup/shutdown procedures?  | NA  |
| OM-15   | Is there a current Emergency Contact list available on site?  | Yes   |
| OM-16   | Who performs emergency repairs?   | <input checked="" type="checkbox"/> PWS Staff <input checked="" type="checkbox"/> Outside or Contracted (Specify) |
| <p>Comments:</p> <p>OM-5: The TWD has been implementing its master plan and only the replacement of the Main Street tubular wellfield (Well 01G) and three water main replacement projects (Main Street, Mason Road, and West Elm) remain. TWD is currently working with a consultant to update the master plan.</p> <p>OM-6: TWD has an enterprise fund accounting system and maintains a System Enhancement Account with a balance equivalent to approximately 20% of TWD's annual operating budget at any given time.</p> <p>OM-7 &amp; 9: There is a hard-wired back-up generator at the Harbor Trace Pump Station (natural gas), the Witches Brook Pump Stations (natural gas), and the West Meadow Booster Station (propane). There is an auxiliary pump at the Main Street Pump Station (natural gas) and an auxiliary engine at the Cross Street Pump Station (natural gas), but these cannot operate the</p> |   |   |

chemical injection equipment so Wells 01G and 02G are not generally used during a power outage. There is no generator for the main PWS office where the principal SCADA equipment is located. TWD has one portable generator, but none of these locations have a prepared electrical connection for its use. (Table C.1) Also, the Surveyor and Superintendent Rafuse discussed the need for carbon monoxide detectors at the pump stations where the generator or auxiliary pump/motor is indoors. (Table C.2)  
OM-16: HydraTech.

## RECORDS MANAGEMENT

|     |  |                |
|-----|--|----------------|
| R-1 | Are the operational records kept properly on-site or at a convenient location near the premises? (Operator Inspection, Maintenance & Complaints, etc.) | Yes            |
| R-2 | Does the PWS have the last 3 CCRs available?   | Yes            |
| R-3 | Does the PWS have a readily available Emergency Response Plan? <sup>GWR-19</sup>   | Yes            |
| R-4 | Is the ERP current and does it contain all of the required elements identified in the ERP checklist?   | No - 22.04(13) |
| R-5 | Does the ERP contain procedures for notification of any purchasing or wholesaling systems in the event of a water quality emergency?                   | Yes            |
| R-6 | Does the ERP state that the PWS will shut down in the event of an emergency?   | No             |
| R-7 | Is there an O&M (Operations & Maintenance) manual on-site which includes Treatment if applicable?  | Yes            |
| R-8 | Does the PWS maintain a system to track consumer complaints?   | Yes - Comment  |

### Comments:

R-4: The 2013 sanitary survey required updating the ERP to include response procedures for the different types of emergencies. The ERP was updated, but an updated checklist is not on file, and further enhancements are required to be fully compliant. In particular, ERP Checklist Sections III.4, III.6-7, and III.10 need to be addressed. (Table B.1)

R-8: Complaints are taken down on a paper form and filed by customer (the PWS maintains a file for each customer). The inspector suggested the PWS track complaints electronically so that patterns can more readily be identified; Superintendent Rafuse said he would raise this with his consultant. (Table C.4)

## OPERATOR COMPLIANCE

|     |  |     |
|-----|--|-----|
| O-1 | Does the system meet primary certified operator requirements (Treatment and Distribution)? <sup>GWR-21</sup> | Yes |
| O-2 | Are the operator grades appropriate for system size and/or treatment type? <sup>GWR-22</sup>                 | Yes |
| O-3 | Are the listed operators' licenses current?  | Yes |
| O-4 | Are Licensed Operator Services contracted out?   | No  |
| O-5 | If yes, is a current/approved Certified Operator Compliance Notice on file?                                  | NA  |
| O-6 | If yes, is there an on-site log of all activities conducted per operator                                     | NA  |

|  |  |     |
|--|--|-----|
|  | policy?  |     |
| O-7  | If treatment is present, does licensed treatment operator perform all duties?  | Yes |
| O-8  | If no, who performs these duties?  | NA  |
| O-9  | Is the operator familiar with the treatment system and its operation?  | Yes |
| O-10   | Does the PWS Staffing Plan on file need to be updated?   | No  |
| O-11   | For VSS systems with no secondary operator, has the PWS filed a Comprehensive Staffing and Operations Plan identifying a backup operator who is available for emergencies? | NA  |
| O-12   | Who covers for contract operator?  | NA  |
| Comments:<br>O-1: Two of the three operators plan to retire by October 2018. Superintendent Rafuse intends to hire new operators to supplement the current staffing level and ensure a smooth transition as retirements occur. (Table C.5) |  |     |

## GROUNDWATER SOURCES

### WELL INSPECTION

| Source ID   | Casing height (ft) | Well House | In Pit | Evidence of Flooding | Fecal Contamination | Tight wellcap | Screened Vent | Raw Water Tap | Chem Inject Port | Runoff directed away | Condition  |
|-------------|--------------------|------------|--------|----------------------|---------------------|---------------|---------------|---------------|------------------|----------------------|------------|
| 2299000-01G | 0.5-3              | N          | N      | N                    | N                   | Y             | NA            | Y             | Y                | Y                    | Acceptable |
| 2299000-02G | 0.5                | Y          | N      | N                    | N                   | NA            | NA            | Y             | Y                | Y                    | Acceptable |
| 2299000-03G | 1                  | Y          | N      | N                    | N                   | NA            | NA            | Y             | Y                | Y                    | Acceptable |
| 2299000-04G | 1                  | Y          | N      | N                    | N                   | NA            | NA            | Y             | Y                | Y                    | Acceptable |
| 2299000-05G | 0                  | Y          | N      | N                    | N                   | NA            | NA            | Y             | Y                | Y                    | Acceptable |

Deficient  
Source ID#s

|     |  |     |     |
|-----|--|-----|-----|
| W-1 | Are raw water sample taps available for the collection of source samples for <u>all</u> wells? <sup>GWR-5</sup>            | Yes |     |
| W-2 | Are emergency chemical injection ports available to add disinfection to the water from all sources? <sup>GWR-6</sup>       | Yes |     |
| W-3 | Are all well houses or structures adequately maintained?   | Yes |     |
| W-4 | Are there any unprotected openings in the sanitary seals of any wells that might result in contamination? <sup>GWR-2</sup> | No  |     |
| W-5 | Is surface water runoff directed away from all sources?  | No  | 01G |
| W-6 | Is the wellhead, cap, and/or vent subject to flooding? <sup>GWR-3</sup>  | No  |     |

|  |   |     |  |
|--|---|-----|--|
| W-7  | Is there evidence of flooding or standing water in any pit or pump house that could result in the entrance of fecal contaminants?<br>GWR-16 | No  |  |
| W-8  | Do any wellheads (casing, cap, vent, seal) appear damaged in a manner that would make the source susceptible to contamination?<br>GWR-1     | No  |  |
| W-9  | Do all air/water relief valve discharges have an air gap? (Not hard-piped to floor drain)<br>GWR-17   | Yes |  |
| W-10   | Are there any unapproved groundwater sources being used?<br>GWR-4   | No  |  |
| W-11   | Does the PWS use manifolded sources?  | No  |  |
| W-12   | If yes, describe how manifolded sources operate (lead/lag or blended).  | NA  |  |
| W-13   | If yes, does the sampling schedule accurately reflect the manifolded system?  | NA  |  |
| <p>Comments:</p> <p>W-5: Well 01G is a tubular wellfield adjacent to Pearl Hill Brook and surrounding wetlands. Many of the tubular wells are actually within the wetlands and are therefore surrounded by surface water at all times. MPA analysis has determined that the wellfield is not under the influence of surface water (see SW-4).</p> <p>W-6: The Main Street Pump Station was offline during this survey due to recent flooding; however, the tubular wells are sealed (no vents, no electrical casing), so they are not susceptible to flooding.</p> |   |     |  |

### ***SOURCE PROTECTION***

|  |   |                         |   |  |
|--|---|-------------------------|---|--|
| S-1  | Non-conforming activities in the Zone I (other than those listed in WQTS):                                      |                         | <input type="checkbox"/> No Changes from WQTS |  |
| S-2  | Source ID#:   | 01G                     | Road and homes                                |  |
| S-3  | Are there any floor drains present in the Zone I(s)?  | Yes                     | Sources: 01G, 02G, 03G, 04G, and 05G          |  |
| S-4  | If yes, where do they drain?  | Comment                 |   |  |
| S-5  | If the floor drains discharge to an Underground Injection Control (UIC) well, are they registered with MassDEP? | Unknown - 22.21(2)(a)8. |   |  |
| S-6  | Are there any discharges into the Zone Is?  | Other (Comment)         |   |  |
| S-7  | Distance from well(s)   | Unknown                 |   |  |
| S-8  | Are source water protection measures adequate?  | Yes                     |   |  |
| S-9  | Is PWS protection area posted?  | No<br>(Table C.6)       |   |  |
| <p>Comments:</p> <p>S-4 &amp; 5: Floor drains in the Main Street Pump Station (Well 01G) drain to an old brick septic tank east of the entrance way. UIC permit status is unknown. All other floor drains discharge to unknown locations. Discharge location and UIC permit status needs to be determined for all pump stations. (Table B.2)</p> <p>S-6: pH analyzer flow-through water.</p> |   |                         |   |  |

### METERS

|  |  |   |                   |
|--|--|---|-------------------|
| M-1  | Does the system have a meter installed on all individual sources?                                  |   | Yes               |
| M-2  | What units do the master meters read in?   | <input checked="" type="checkbox"/> Cu ft <input checked="" type="checkbox"/> Gallons |                   |
| M-3  | Do the master meters account for all water supplied/purchased/withdrawn?                           |   | Yes               |
| M-4  | Where are the master meters located?   | Raw water lines   |                   |
| M-5  | How frequently are the master meters read?   | Continuously  |                   |
| M-6  | Who reads the master meters? (Owner, Operator, Automated, or Other)                                |   | SCADA             |
| M-7  | In what year was the master meter(s) last calibrated (or installed)?<br>(Whichever is more recent) |   | 8/2/2016<br>(all) |
| Comments:<br>M-2: The Main Street Pump Station master meter reads in cubic feet. All others read in gallons. |  |   |                   |

### TREATMENT

|   |  |   |
|---|--|---|
| No Treatment Present <input type="checkbox"/> | Treatment in WQTS is correct <input checked="" type="checkbox"/> | Unapproved Treatment <input type="checkbox"/> |
|---|--|---|

### GENERAL TREATMENT QUESTIONS (ROLL-UP)

|   |   |                |
|---|---|----------------|
| T-1   | Does the system use a sediment filter?  | No             |
| T-2   | If yes, how often is the filter media/cartridge replaced?   | NA             |
| T-3   | Are all treatment components effectively removing/treating targeted contaminants?   | Yes            |
| T-4   | Is all treatment equipment properly maintained?   | Yes            |
| T-5   | Is safety equipment adequate for the treatment system/chemicals present?  | Yes            |
| T-6   | Are there any unprotected by-passes at any point in the treatment process that could result in fecal contamination (i.e. filter backwash, membrane cleaning processes, etc)? <sup>GWR-7</sup> | No             |
| T-7   | If required, are the chemical treatment forms (C-ADD) being submitted?  | Yes            |
| T-8   | If yes, are the C-ADD forms being completed properly?   | Yes            |
| T-9   | Is the PWS maintaining a log of maintenance for all treatment systems? (e.g., backwashing, sediment, calibration of analyzers)  | Yes            |
| T-10  | Has PWS demonstrated compliance with Chapter 6 for Critical Chemical Feed Systems?  | No - Chp 6.1.3 |
| T-11  | Has PWS demonstrated compliance with Chapter 6 for Non-Critical Chemical Feed Systems?  | NA             |
| Comments:<br>T-3: The only treatment is pH adjustment for corrosion control using Sodium Hydroxide. The PWS has not been exceeding the action level for either lead or copper and is currently on reduced monitoring.<br>T-10: All chemical feed pumps are flow paced, but none are electrically interlocked with the |   |                |



well pump, a flow meter/flow switch, or the pH analyzer. As currently programmed, a high pH alarm will shut down the well pump, which in turn creates a no flow situation that stops chemical addition only because the chemicals are flow paced. (Table B.3)

### ***TREATMENT TECHNIQUE GWR***

|           |  |                   |
|-----------|--|-------------------|
| TT-1      | Has a GWR-A Form been submitted for all groundwater sources?   | No<br>(Table C.7) |
| TT-2      | Are there any sources certified as receiving 4-log treatment under the GWR?  | No                |
| TT-3      | If yes, has the system experienced the loss of membrane integrity or lack of monitoring of membrane integrity where 4-log treatment is required?<br>GWR-9  | NA                |
| TT-4      | If yes, is the PWS operating, maintaining, and monitoring its disinfection process to ensure the required 4-log treatment is achieved? (If using a continuous chlorine analyzer, this includes collecting grab samples to calibrate the analyzer a minimum of once every 5 days)?<br>GWR-8 | NA                |
| TT-5      | If yes, Are the GWR compliance monitoring forms submitted correctly?   | NA                |
| Comments: |  |                   |

### **FINISHED WATER STORAGE**

The following storage types are present at this PWS and were evaluated as part of the survey:

- ☒ Hydropneumatic Storage Tanks
- ☒ Atmospheric Storage Tanks
- ☐ Clearwells (Refer to Treatment section)

### ***HYDROPNEUMATIC STORAGE TANKS***

|  |   |                 |
|--|---|-----------------|
| HT-1   | Do all hydropneumatic storage tanks have a working pressure gauge?                                  | Comment         |
| HT-2   | Are all hydropneumatic storage tanks in acceptable condition?                                       | Yes- Acceptable |
| HT-3   | If the system only uses hydropneumatic storage tanks, is the volume and type of storage sufficient? | NA              |
| Comments:  |   |                 |
| HT-1: The hydropneumatic tank in the West Meadow Booster Station (the only hydropneumatic tank in the system) has a pressure transducer instead of a pressure gauge. |   |                 |

### ATMOSPHERIC STORAGE TANKS

| STORAGE TANK NAME       | Proper Overflow Structure? | Is Hatch Covered-Locked? | Is tank Vented/Screened? | Is Sample Tap at tank? | High-Low Level Control Alarms? | By-pass for Repair-Cleaning? | Does tank have Mixer? | Fenced or otherwise secured? (comment) | Does tank need to be painted? | Date of Last Cleaning | Date of Last Inspection |
|-------------------------|----------------------------|--------------------------|--------------------------|------------------------|--------------------------------|------------------------------|-----------------------|--|-------------------------------|-----------------------|-------------------------|
| Highland Street (1 MG)  | Y                          | Y                        | Y                        | Y                      | Y                              | Y                            | Y                     | N                                      | N                             | Spring 2012           | 9/13/2012               |
| Fitchburg Road (0.5 MG) | Y                          | Y                        | Y                        | Y                      | Y                              | Y                            | Y                     | Y                                      | N                             | June 2015             | 10/27/2014              |

#### Deficient Tanks:

|      |  |         |                             |
|------|--|---------|-----------------------------|
| AT-1 | Are any in-ground or ground-level storage tanks, tank overflows, drains, or hatches subject to flooding or run-off (minimum of 50 ft)? <sup>GWR-12</sup> | No      |                             |
| AT-2 | Are there holes or other failures of the roof or structure of any storage tanks? <sup>GWR-13</sup>   | No      |                             |
| AT-3 | Do all storage tanks have entry hatch or access ladders locked/secured to prevent unauthorized access? <sup>GWR-14</sup>                                 | Yes     |                             |
| AT-4 | Do all storage tanks have proper screening or protection of overflow pipes, drains and vents? <sup>GWR-15</sup>  | Comment |                             |
| AT-5 | Is the PWS conducting monthly tank inspections of all atmospheric tanks?   |         | Yes                         |
| AT-6 | If yes, are they retaining a log of the monthly tank inspections?  |         | No - Chp 8.1.22 (Table B.4) |
| AT-7 | Are there unaddressed issues that were identified during previous tank inspections? (Specify below)  |         | Yes - Ch 8                  |
| AT-8 | Do any storage tanks have hydraulic or turnover issues that contribute to water quality or pressure problems in the distribution system?                 |         | No                          |

#### Comments:

Box: The Highland Street Tank has a Tideflex passive mixing system. The Fitchburg Road Tank has a GridBee mixer with the option to inject chlorine. The Fitchburg Road Tank is fenced, and a new vent assembly was installed per a recommendation in the 2014 inspection report.

AT-4: A defect in the overflow screen at the Fitchburg Road Tank needs to be repaired (see AT-7b).

AT-7a: The 2012 Highland Street Tank inspection report recommended maintenance (blasting/recoating) of the steel components of the overflow pipe that are inside the tank. TWD plans to have this tank re-inspected in Fall 2017. The Surveyor requested that Superintendent Rafuse also have the overflow pipe rehabilitated and the tank cleaned at that time. (Table B.5)

AT-7b: TWD installed a vent, a new hatch, and sealed the bolt/rivet holes in the Fitchburg Road Tank as recommended in the 2014 tank inspection report, but did not seal the slight gap between the roof and the shell rim, which was also recommended. TWD has developed specifications for rehabilitation of the Fitchburg Road Tank to be done in 2017. Work will include blasting and recoating the interior and exterior surfaces, replacing the 4-inch overflow with an 8-inch

overflow, repairing the foundation as needed, and replacing the manway gaskets. The Surveyor cautioned Superintendent Rafuse about lead paint reported in the 2014 tank inspection report and requested that the rehabilitation include sealing the roof-wall gap described above. (Table B.6)

## DISTRIBUTION SYSTEM / MAINTENANCE

|      |   |                            |
|------|---|----------------------------|
| D-1  | What is the date of the most recent distribution map on file?   | April 2008                 |
| D-2  | Are the valves, hydrants and dead-ends identified?  | Yes                        |
| D-3  | Does the distribution map need to be updated based on changes to the system?  | Yes - 22.19(6) (Table B.7) |
| D-4  | How many distribution systems are there?  | One                        |
| D-5  | How many pressure zones are there?  | One                        |
| D-6  | Are there low (under 20 psi) or negative pressures that occur under normal operating conditions in any part of the distribution system that could result in the entrance of fecal contaminants? <sup>GWR-11</sup> | No                         |
| D-7  | Are there any distribution system weaknesses or problems?   | Yes - Comment              |
| D-8  | Is there an adequate flushing program?  | Comment                    |
| D-9  | Date the entire system was last flushed?  | Date:      Comment         |
| D-10 | Date of the last leak detection survey:   | Date:      2014            |
| D-11 | Percent of system surveyed:   | Percent:      100%         |
| D-12 | Are distribution system valves exercised annually?  | No - Chp 9.3.9             |
| D-13 | Are there individual service meters?  | Yes                        |
| D-14 | If yes, at what frequency are the service meter read?   | Quarterly                  |
| D-15 | If yes, is there a service meter replacement program?   | Yes                        |
| D-16 | Is there a hydrant maintenance program?   | No - Chapter 9.13          |
| D-17 | Is there a written PM (Preventative Maintenance) program?   | No                         |

### Comments:

D-6: Under certain (abnormal) operating conditions, a segment of the distribution system (the West Elm/Jonathan Lane loop) could experience negative pressure. This could occur if a hydrant were open (i.e., for flushing or during a fire) and the Main Street Pump Station were offline. While the PWS can control its flushing activities, it cannot always control when the Main Street Pump Station will be offline (it was offline during this survey due to flooding) nor can it control when or where a fire occurs. (Table B.8)

D-7: There is minor tuberculation on the unlined cast iron main. The 2003 master plan called for replacement, but now the PWS is planning to clean out the existing main via ice pigging.



D-8: The unidirectional flushing program developed in 2005 divides the distribution system into four sectors. The plan calls for flushing two sectors in the spring and two in the fall, but due to insufficient staff only one sector is flushed per season (two per year). (Table B.9)  
D-9: Sector 2 was flushed in Spring 2016. No flushing occurred in Fall 2016 due to the drought.  
D-10: TWD tries to do a leak detection survey every three years. Another one is planned for Fall 2017.  
D-12: The PWS intends to exercise all valves annually, but cannot do so due to insufficient staff. Right now, valve exercising is done by sector in conjunction with the flushing program (see D-8). (Table B.9)  
D-15: The PWS began replacing meters in 2015 and is replacing about 150 per year.  
D-16: There used to be a regular hydrant maintenance program, but now hydrant maintenance is ad-hoc due to insufficient staff. Hydrant valves are exercised by sector in conjunction with the flushing program. (Table B.10)

### **CROSS-CONNECTION/BACKFLOW PREVENTION**

|  |  |                               |
|--|--|-------------------------------|
| XC-1   | Does the system have a cross-connection plan approval letter on file?  | Yes                           |
| XC-2   | Who is the Cross Connection Program Coordinator? (COM - cross reference with the ASR, <i>Cross Connection Control Program</i> Section)       | Paul Rafuse                   |
| XC-3   | Is the Cross Connection Program Coordinator a member of the PWS staff?   | Yes                           |
| XC-4   | If subcontracted, is a current Sub-delegation Form on-file?  | No - 22.22(3)(q) (Table B.11) |
| XC-5   | Date of last complete service area Cross-Connection Survey:  | 1992                          |
| XC-6   | Have all identified cross-connections from the survey been protected?  | Yes                           |
| XC-7   | Have all high hazard facilities been identified, surveyed, and properly protected? <sup>GWR-10</sup>   | Yes                           |
| XC-8   | Has the system undergone any plumbing modifications since the last cross connection survey?  | Yes                           |
| XC-9   | Does the PWS have testable devices?  | Yes                           |
| XC-10  | If yes, does the system keep on-site an inventory list of the devices, including type of device, location, and device test inspection dates? | Comment                       |
| XC-11  | If yes, is the testing performed as required?  | No - 22.22(13)(d)             |
| XC-12  | If yes, does the information reported in the ASR reconcile with the on-site records?   | No - 22.22(3)(j)              |
| XC-13  | Are all threaded taps at PWS owned facilities protected by a vacuum breaker? (Hose bib or atmospheric silcock)                               | Yes                           |
| XC-14  | Are residents annually provided cross-connection education (may be in CCR or separate pamphlets)?  | No - 22.22(3)(f)              |
| Comments:<br>XC-4: Gary Odoardi of Water Service Associates has been the surveyor and device tester since 1992 when the initial system-wide survey was done. |  |                               |

XC-5: There is one commercial building in town (Evans on the Common at 18 Highland Street) that has refused to allow TWD's cross-connection surveyor to conduct a cross connection survey. TWD expects that a device will be required on the fire suppression system. (Table A.1)

XC-8: New connections are reviewed and surveyed as they come on-line. Superintendent Rafuse learns of all new construction projects through the Town's mandatory referral process. He coordinates with the developer/engineer to identify potential cross-connections and required backflow prevention devices. Gary Odoardi tests the device and surveys the new building in accordance with his annual testing cycle, which is approximately every February/March and August/September. The most recent survey was of the new fire department headquarters building (Central Station) located at 13 Elm Street.

XC-10: TWD does not have its own list of facilities and devices. It relies on the annual device inventory/testing history that is provided by Gary Odoardi of Water Service Associates. TWD needs its own master list to compare the annual device inventory/testing history against for quality assurance purposes. (Table A.2)

XC-11: Per the 2014 ASR, there were 21 RPBP failures and 6 DCVA failures, but only 12 RPBP repairs/re-tests and 5 DCVA repairs/re-tests were reported. Per the 2015 ASR, 95 RPBP routine tests were required, but only 92 were performed and only 2 explanations were provided. Also, there were 20 RPBP failures, but only 15 RPBP repairs/retests were reported. Per the 2016 ASR, there were 22 RPBP failures and 5 DCVA failures, but only 15 RPBP repairs/re-tests and 4 DCVA repairs/re-tests were reported. (Table A.3)

XC-12: Per the 2015 ASR, TWD has 55 RPBPs, 31 DCVAs, and 9 PVBs (95 devices total). The Surveyor counted 104 devices in the 2015 device inventory provided by Gary Odoardi of Water Service Associates (see XC-10).

XC-14: 2014 CCR has cross-connection education, but 2015 CCR does not. (Table A.4)

### **INTERCONNECTIONS**

|     |   |     |
|-----|---|-----|
| I-1 | Does the system maintain a hard piped interconnection with another approved PWS?  | Yes |
| I-2 | If yes, are all hardpiped interconnections properly listed in WQTS?   | No  |
| I-3 | If yes, are the interconnections metered?   | Yes |
| I-4 | If yes, are the interconnection valves regularly exercised and maintained?  | Yes |
| I-5 | If an interconnection has been established to comply with 310 CMR 22.21(3)(a), can the interconnection provide this system an average daily demand for at least 48 hours? | NA  |
| I-6 | Do any other potential interconnections exist with other PWS that could be utilized in an emergency?  | No  |

#### **Comments:**

I-1: Interconnection with the Pepperell Water Department on Proctor Road near Harbor Street.

I-5: TWD complies with 310 MCR 22.21(3)(a) with more than two days of storage; however, Superintendent Rafuse does believe that the interconnection could supply Townsend's water needs for at least 48 hours depending on the time of year (i.e., water use restrictions might be necessary if used in the summer).

## WATER QUANTITY

|  |   |                        |
|--|---|------------------------|
| Q-1  | Does system have wells other than the ones listed on sample schedule (irrigation wells, fire wells)?                          | No                     |
| Q-2  | If yes, are these sources metered?  | NA                     |
| Q-3  | Has water use increased above MassDEP limits or approval rates? (Comment)   | No                     |
| Q-4  | If yes, did it exceed Zone I limits? (Comment)  | NA                     |
| Q-5  | Is system properly reporting their water quantity data in their annual statistical report? (annual, max. month, and max. day) | Yes                    |
| Q-6  | Is the quantity of water supplied adequate?   | Yes                    |
| Q-7  | Does the production from any source(s) decrease significantly during the year?  | No                     |
| Q-8  | If yes, describe during which periods, and how it is handled?   | NA                     |
| Q-9  | Has the PWS implemented any voluntary or mandatory water bans within the last two years?                                      | Yes                    |
| Q-10   | If yes, why?  | WMA permit requirement |
| Comments:<br>Q-10: Per WMA permit, outdoor water use is odd/even and restricted to before 9AM and after 5PM from May 1 <sup>st</sup> to September 30 <sup>th</sup> every year. |   |                        |

## BOOSTER PUMPING STATIONS (DISTRIBUTION)

☐ None Present

|      |  |                                    |             |
|------|--|------------------------------------|-------------|
| B-1  | List booster pumping stations evaluated:   | West Meadow Booster Station        |             |
| B-2  | Are all pump station adequately maintained?  | Yes                                |             |
| B-3  | Are any of the booster pump station subject to flooding? (Either inside or outside infiltrating into the building) <sup>GWR-16</sup> | No                                 |             |
| B-4  | If yes, is a flood alarm present?  | Yes                                |             |
| B-5  | Are any electrical components vulnerable to a flooding event?  | No                                 |             |
| B-6  | Is wastewater generated at any booster pump station?   | No                                 |             |
| B-7  | If yes, where does it go?  | NA                                 |             |
| B-8  | Do all booster pump stations have a chemical injection port for emergency chlorination?  | No                                 |             |
| B-9  | Are all booster pump stations appropriately secured?   | Yes                                |             |
| B-10 | Are there any floor drains present in the pump stations?   | Yes                                | Sources: NA |
| B-11 | If yes, where do they drain?   | Dry well                           |             |
| B-12 | If the floor drains discharge to an underground injection control well, are they registered with MassDEP?                            | Unknown - 22.21(2)(a)8 (Table B.2) |             |
| B-13 | Is emergency power available at all booster pump stations?   | Yes                                |             |

Comments:

B-4: Flood alarm was tested during this survey and did not activate. Superintendent Rafuse retested the alarm and found that we had not inverted the float for sufficient time to activate the alarm. He reported that the alarm is in good working order.

## WATER QUALITY

|      |   |               |
|------|---|---------------|
| WQ-1 | Have there been any MCL violations or action level exceedances in the past 12 months?                 | No            |
| WQ-2 | If yes, what is being done to correct them?   | NA            |
| WQ-3 | Have there been elevated levels of any contaminant?   | Yes - Comment |
| WQ-4 | If yes, are they being satisfactorily addressed? (treatment or source protection etc.) (Comment)      | Comment       |
| WQ-5 | Have consumer complaints been made regarding water quality?   | Yes - Comment |
| WQ-6 | Are all samples being collected at the locations identified on their WQSS or approved sampling plans? | No - 22.15(7) |

Comments:

WQ-1: There was one coliform detect in 2016 (April) and two detects in 2015 (May and November); however, repeat samples were clean in all three instances, and no further action was required.

WQ-3 & 4: Well 02G was taken offline in 2015 due to elevated iron and manganese. At the time of this survey, a consultant was evaluating treatment options. Sodium is also elevated throughout the system (21.2 mg/L to 59.9 mg/L in 2015). MassDEP approved a switch from potassium hydroxide to sodium hydroxide for pH adjustment on May 27, 2009, and in the permit conditions required quarterly monitoring and public notification if sodium levels exceeded 100 mg/L. TWD has not exceeded this threshold, but must still report the sodium levels in the annual CCR, because some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure. (Table B.12)

WQ-5: Most customer complaints are for discolored water.

WQ-6: RS009 is now collected from 97 Ash Street rather than 92 Ash Street as identified in the approved TC plan (see TC-2).

## LEAD & COPPER RULE COMPLIANCE

|      |   |         |
|------|---|---------|
| LC-1 | If the PWS provides corrosion control treatment, is the PWS monitoring pH and other applicable parameters (e.g. alkalinity, orthophosphate residual) at each entry point <b>and</b> at locations in the distribution system (e.g. Coliform sampling sites)? | Comment |
| LC-2 | Have there been any changes to the system that would require submittal of a revised Lead & Copper Sampling Plan?  | No      |

Comments:

LC-1: pH is supposed to be monitored monthly at all source pumping stations and throughout the

distribution system (15 total sample sites). At the time of this survey, this was being done irregularly (a few times per year) due to insufficient staff, but, as of March 10, 2017, Superintendent Rafuse stated that monthly grab samples are being analyzed for pH as intended.

### ***SWTR COMPLIANCE FOR GROUNDWATER SOURCES (GWUDI)***

|   |   |          |
|---|---|----------|
| SW-1  | Have all groundwater sources been evaluated for GWUDI?  | Yes      |
| SW-2  | Have conditions changed that would affect the current Exemption Status of any source? (i.e. surface water encroachment, well head condition, coliform detections in last 3 years, etc.) | No       |
| SW-3  | For all Non-Community Systems - Are all of the sources > 100 ft from the nearest surface water feature?   | NA - COM |
| SW-4  | For Community Systems with Sand and Gravel Wells - Are all of those sources > 150 ft from the nearest surface water feature?  | No       |
| SW-5  | For Community Systems (pumping less than 100,000 gpd) with Bedrock wells - Are all of those sources > 200 ft from the nearest surface water feature?                                    | NA       |
| Comments:<br>SW-4: Well 01G is less than 150 feet from the nearest surface water feature, but Well 01G was exempted based on MPA testing. Wells 04G and 05G are less than 150 feet from the apparent wetlands limit. All other wells are more than 150 feet from the nearest surface water feature. |   |          |

### ***COLIFORM SAMPLING COMPLIANCE***

|   |   |                                 |
|---|---|---------------------------------|
| TC-1  | Does the system have an approved Total Coliform Sampling Plan?  | Yes                             |
| TC-2  | If yes, does the TC Plan need to be updated?  | No                              |
| TC-3  | Have there been changes to the distribution system or population served that would require the TCR plan to be updated to be in compliance with the distribution sampling requirements of the Total Coliform Rule? <sup>GWR-18</sup> | No                              |
| TC-4  | Is there a TC sampling map on file?   | Yes                             |
| TC-5  | If yes, what is the date/year of that map?  | April 2008                      |
| TC-6  | If yes, does this map need to be updated?   | Yes-<br>22.19(6)<br>(Table B.9) |
| Comments:<br>TC-2: An updated TC plan was approved by MassDEP on May 2, 2017. |   |                                 |

### ***OTHER ISSUES OBSERVED***

None.



## OUTSTANDING ACTIONS

### ENFORCEMENT ACTIONS

None.

### INSPECTION ACTIONS

None.

## PHOTOS



Main Street Pump Station and surrounding wetlands



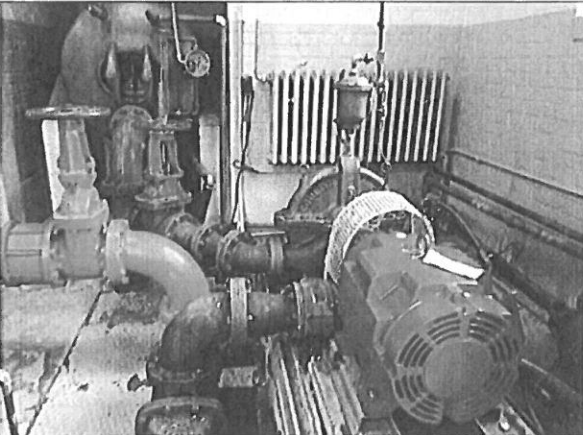
Tubular wellfield (Well 01G) behind the pump station



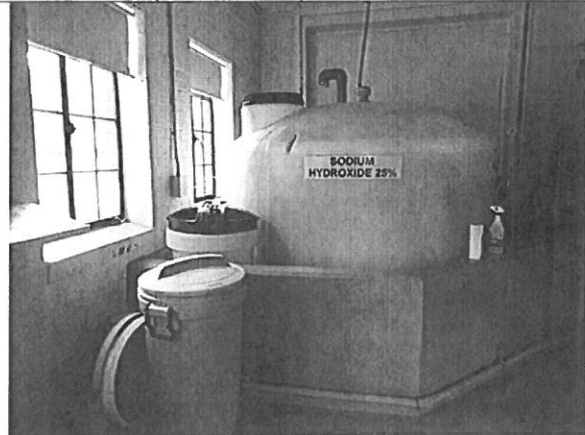
Markers for tubular wells within the wetlands



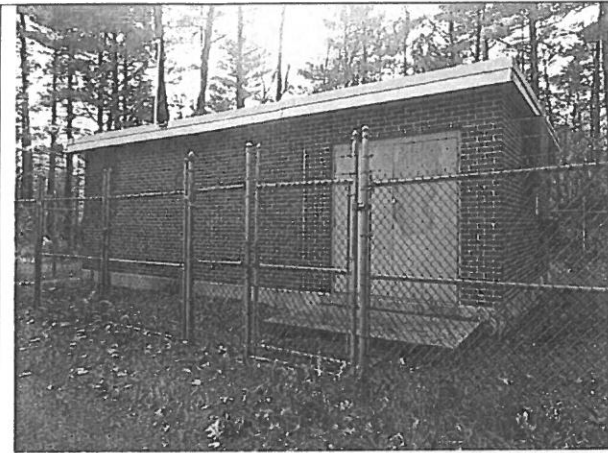
Discharge point for analyzer flow-through water



Holding tank and 50 Hp pump at Main Street



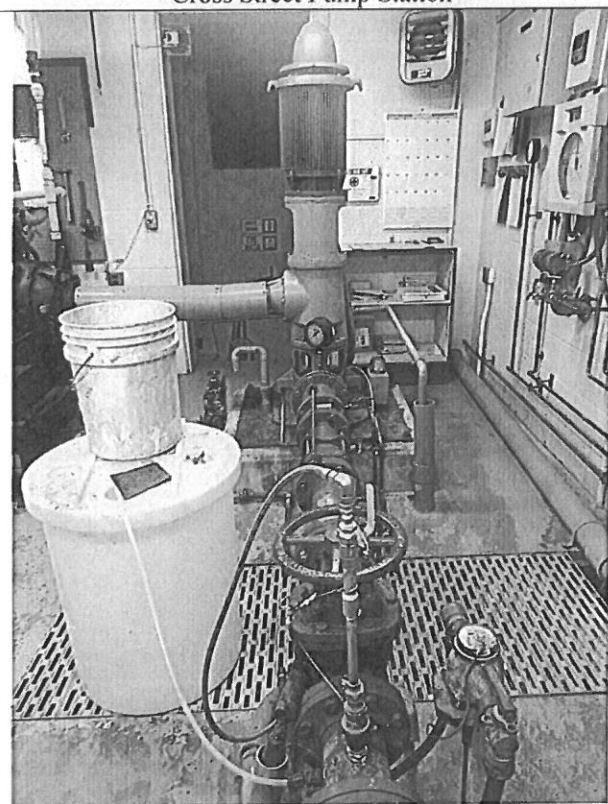
Chemical containment area at Main Street



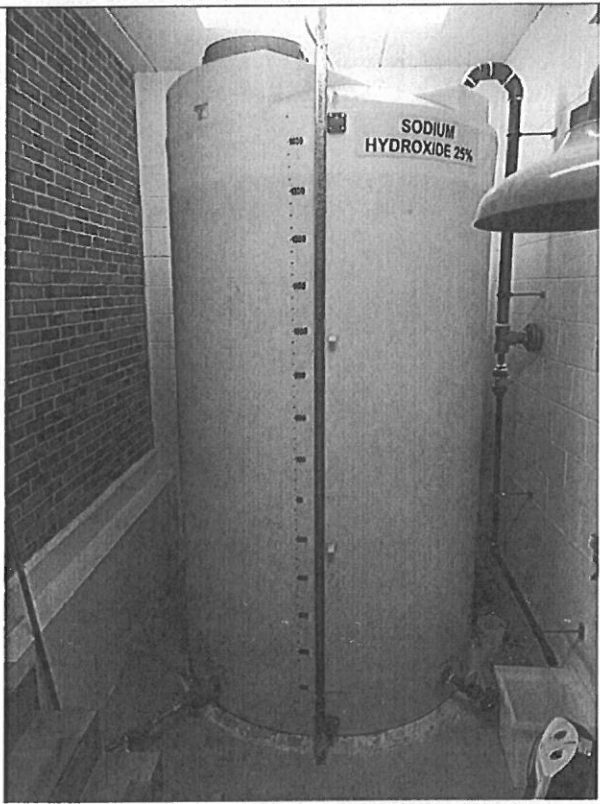
Cross Street Pump Station



Test wells at Cross Street



Cross Street Well (Well 02G)



Chemical containment area at Cross Street



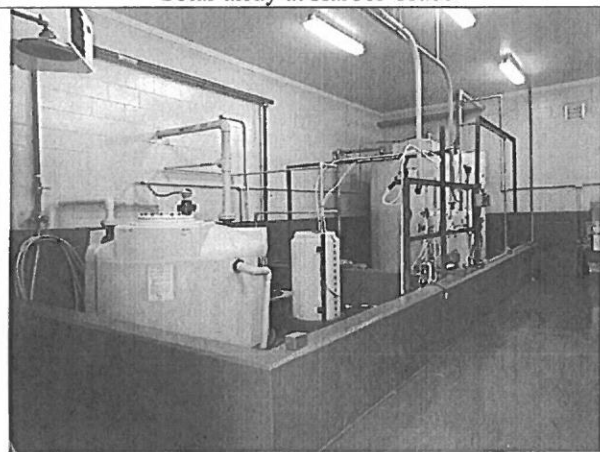
Harbor Trace Pump Station



Solar array at Harbor Trace



Well 03G



Chemical containment area at Harbor Trace

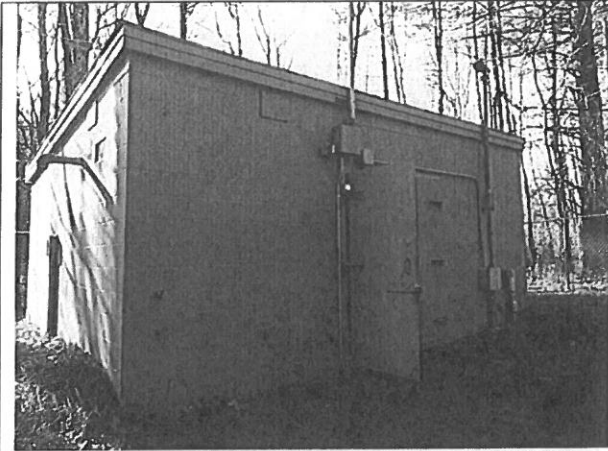


Witches Brook Well #1 Pump Station (right) and  
Witches Brook Well #2 Pump Station (left)

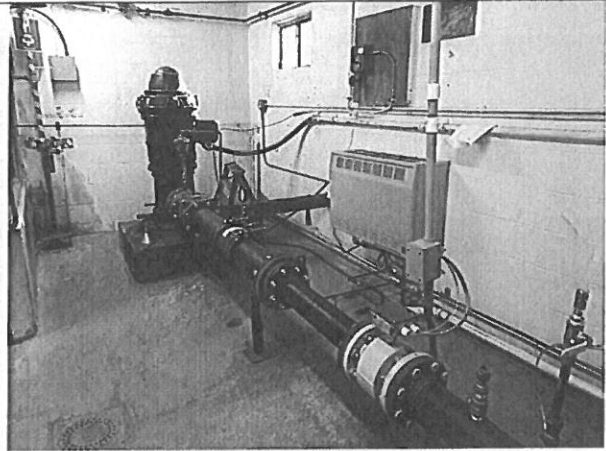


Storage building on Witches Brook property





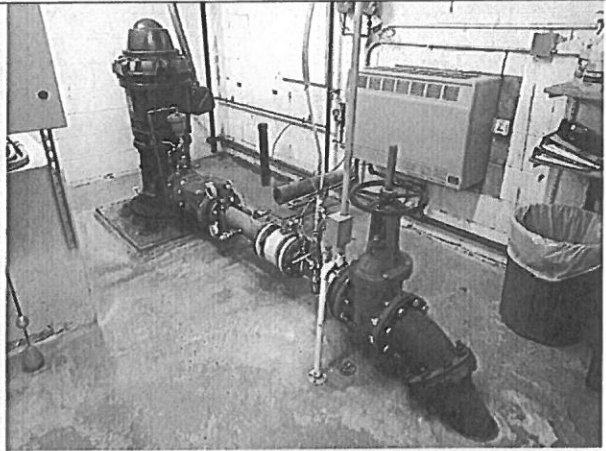
Witches Brook Well #1 Pump Station (Well 04G)



Well 04G



Witches Brook Well #2 Pump Station (Well 05G)



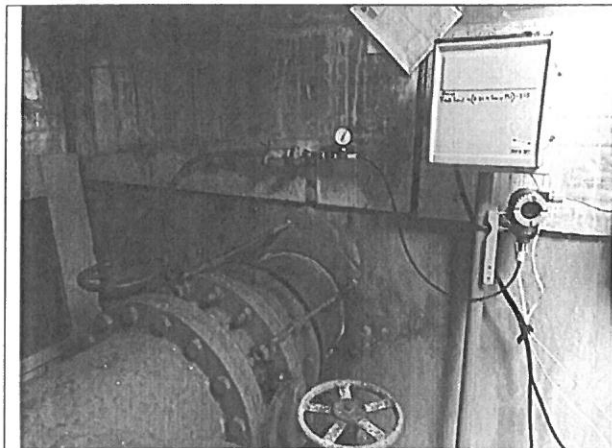
Well 05G



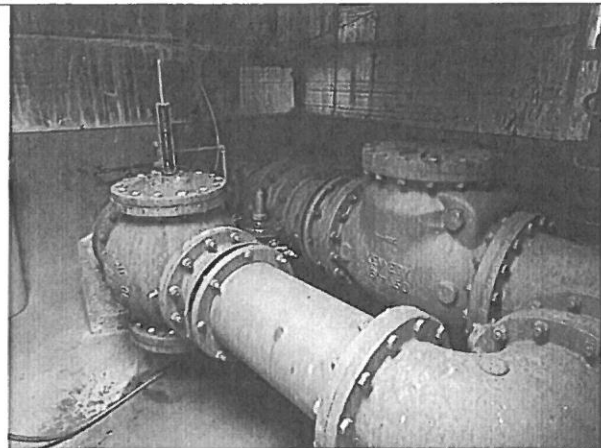
Highland Street Tank (1 MG)



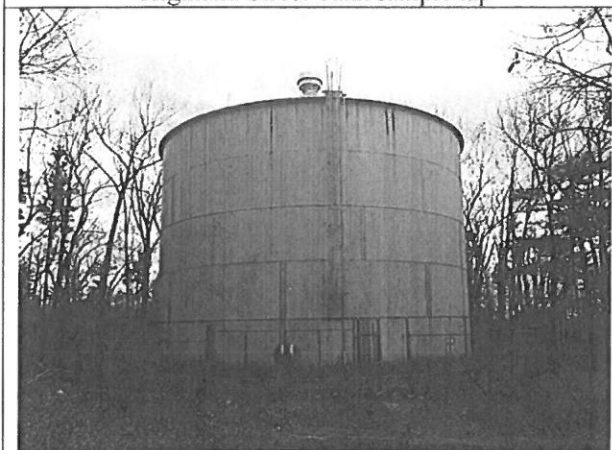
Highland Street Tank overflow



Highland Street Tank sample tap



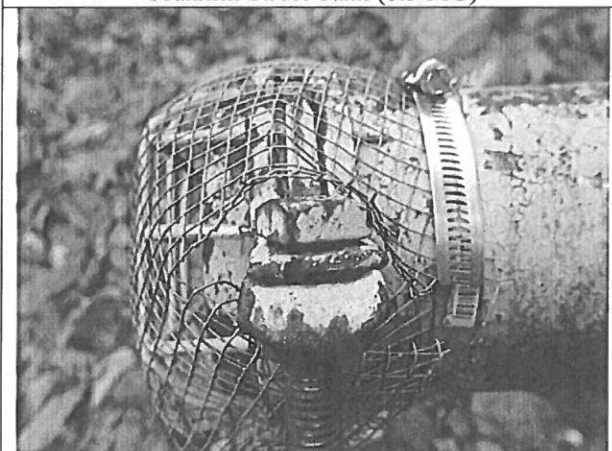
Highland Street Tank inlet/outlet and altitude valve



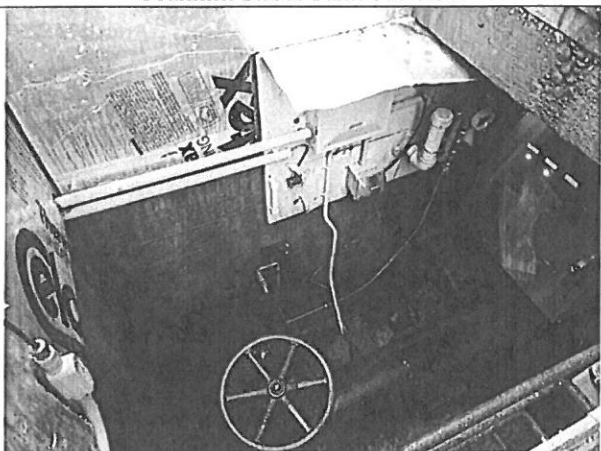
Franklin Street Tank (0.5 MG)



Franklin Street Tank overflow



Franklin Street Tank overflow screen



Franklin Street Tank inlet/outlet and controls



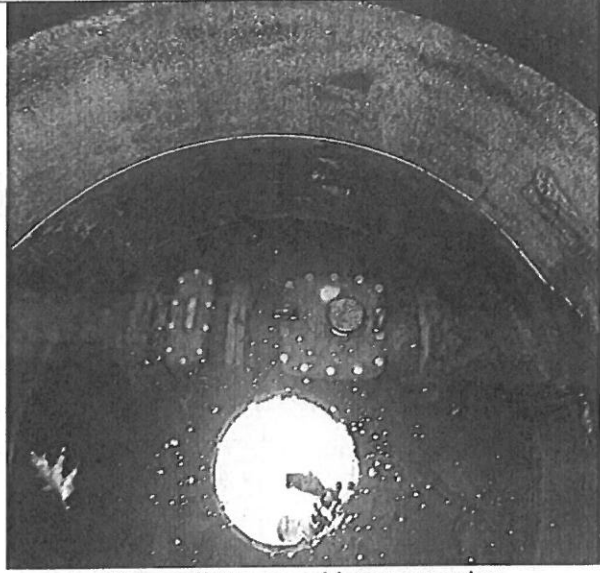
West Meadow Booster Station



Booster and jockey pumps at West Meadow



Pepperell-Townsend interconnection on Proctor Road



Pepperell-Townsend interconnection

## ADDITIONAL INFORMATION

The following resources may be helpful in understanding the findings in this inspection report:

- Massachusetts Drinking Water Regulations  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/310-cmr-22-00-massachusetts-drinking-water-regulations.html>
- Guidelines for Public Water Systems  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/guidelines-for-public-water-systems.html>
- Drinking Water Policies  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/water-resources-policies-and-guidance-documents.html#3>
- 2014 Standards & Guidelines for Contaminants in Massachusetts Drinking Water  
<http://www.mass.gov/eea/agencies/massdep/water/drinking/standards/standards-and-guidelines-for-drinking-water-contaminants.html>
- Immediate Action Levels for Water Treatment Plant Chemicals  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/immediate-action-levels-water-treatment-plant-chemicals.html>



### Attachment 1: Chemical Feed Inspection Checklist

|  |  |                     |
|--|--|---------------------|
| List Chemical Additive:  | Sodium Hydroxide   | Critical Chem - Yes |
| What are the operating parameters?   |  |                     |
| <input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual <input type="checkbox"/> Other _____  | Target: 7.2  |                     |
| System Automation (SCADA, Manual, Flow paced w/alarms)   | SCADA  |                     |
| Are daily grab samples being taken?  | No   |                     |
| Is chemical flow paced?  | Yes  |                     |
| Are the pump motor controller(s), chemical metering pump(s) and chemical analyzer(s) electrically interlocked so that no chemical is injected if the water pump is not running?  | No - 22.04(14)<br>(Table B.3)                            |                     |
| Is there a flow meter or thermal type flow switch provided so that no chemical is injected if no flow is detected?   | No - 22.04(14)<br>(Table B.3)                            |                     |
| How often is/are the interlock(s) tested?  | Monthly  |                     |
| Are metering pumps powered so that they cannot be left to operate in manual mode?  | Yes  |                     |
| If yes, how are they configured?<br><input checked="" type="checkbox"/> HOA switch with timer <input type="checkbox"/> Receptacle with twist lock plug<br><input type="checkbox"/> One outlet controlled by timer <input checked="" type="checkbox"/> SCADA <input type="checkbox"/> Other _____   |  |                     |
| Alarms? <input type="checkbox"/> None <input type="checkbox"/> Audible <input type="checkbox"/> Light <input checked="" type="checkbox"/> Autodialer<br>Check all <input checked="" type="checkbox"/> SCADA <input type="checkbox"/> Cellular-Based <input type="checkbox"/> Tone/Telemetry<br><input type="checkbox"/> Alarm Company <input type="checkbox"/> Other _____ |  |                     |
| Who receives the alarms, and in what order?  | On call operator, other operators, then police dispatch. |                     |
| How frequently are the alarms tested?  | Monthly  |                     |
| Is there a written alarm testing program?  | No - 22.04(14)<br>(Table A.5)                            |                     |
| What are the alarm set points?   | High: 9.5    Low: 5.5    Other:                          |                     |
| What is the shut down set point?   | 9.5  |                     |
| Does alarm notification/shut down require an "on-site" manual reset?   | Yes  |                     |
| Is there continuous monitoring?  | Yes  |                     |
| If yes, at what frequency is the in-line monitoring device calibrated?   | Monthly  |                     |
| If yes, how is it recorded?<br><input checked="" type="checkbox"/> Chart recorder <input type="checkbox"/> Electronic data logger<br><input type="checkbox"/> Log book <input checked="" type="checkbox"/> SCADA <input type="checkbox"/> Not recorded   |  |                     |
| Are the chemical feed additives NSF approved?  | Y  |                     |

|   |                              |
|---|------------------------------|
| Are chemicals being used prior to expiration date?  | Tank filled every 2-3 months |
| Are spare chemical feeders and/or pumps available that have equivalent capacity to the primary? | Comment                      |
| Does the chemical feed pump have appropriate anti-siphon protection?                            | Yes                          |
| Is there at least 1 week's worth of chemical available?   | Yes                          |
| If phosphates are used, is chlorine residual maintained in feed?                                | NA                           |
| If pH analyzer is used, have the buffer solutions expired?                                      | No                           |
| How frequently is backup power sources tested?  | Cycle weekly (see OM-7)      |
| Has the system had any incidences of critical chemical overfeeds or underfeeds?                 | No                           |

Comments:

Spare pumps stored at the TWD office and the Harbor Trace Pump Station.

**Safety**

|  |   |
|--|---|
| Is the chemical feed equipment in a separate room?                       | Comment   |
| Is the room properly ventilated?   | Comment   |
| Are the feed lines color-coded?  | Comment   |
| Is there adequate containment for each chemical?                         | Yes   |
| Hard piped:  | <input checked="" type="checkbox"/> Eyewash <input type="checkbox"/> Shower |
| Is eyewash bottle solution past expiration date?                         | NA  |
| Is there appropriate safety and personnel protective equipment provided? | Yes   |

Comments:

The chemical feed equipment is located in a separate room at the Main Street Pump Station and the Cross Street Pump Station only.

There is no ventilation system in the Main Street Pump Station (the oldest pump station).

Chemical feed lines are color-coded and labeled only at the Harbor Trace Pump Station (the newest pump station); however, the sodium hydroxide chemical feed lines are still labeled potassium hydroxide.

Only Wells 03G (Harbor Trace Pump Station) and Well 05G (Witches Brook Well #2 Pump Station) were online at the time of this survey. Alarms were tested by shutting down the well pump and creating an artificial high pH condition. Both situations created alarm conditions in SCADA and dialed Superintendent Rafuse as intended. Shutting down the well pump stopped the chemical feed. The high pH alarm shutdown the well pump, which stopped the chemical feed. However, the chemical feed pumps are only flow paced, not interlocked with the well pump, flow meter/switch, and pH analyzer as required (see T-10). (Table B.3)





## James Kreidler

---

**From:** James Kreidler <jkreidler@townsend.ma.us>  
**Sent:** Monday, June 19, 2017 3:19 PM  
**To:** Cindy King; Gordy Clark; James M. Kreidler (jkreidler@townsend.ma.us); Kelly Merrill; Sue Lisio  
**Subject:** Emailing - DEP Sanitary Survey- Townsend Water Department.pdf  
**Attachments:** DEP Sanitary Survey- Townsend Water Department

Dear All,

Attached please find a copy of the Water Department's Sanitary Survey from DEP.

Please pay particular note to Tables A: Violations and B: Deficiencies.

Perhaps this matter can be added to the Agenda for the joint Board meeting being planned.

Jim  
James M. Kreidler  
Town Administrator  
Town of Townsend  
272 Main Street  
Townsend, MA 01469  
(978) 597-1700  
[jkreidler@townsend.ma.us](mailto:jkreidler@townsend.ma.us)

If this email is received by a multi-member public board, commission or committee please take care to never "respond to all" as you may inadvertently create a violation of the open meeting law.

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## James Kreidler

---

**From:** Paul Rafuse <prafuse@townsend.ma.us>  
**Sent:** Saturday, June 24, 2017 9:58 AM  
**To:** 'Kelly Merrill'  
**Cc:** James Kreidler; Nathan Mattila; Steven Doucette  
**Subject:** RE: Selectman's Meeting 6/27

Kelly/Jim,

Please thank the board for their invitation and we appreciate their concern. The Board of Water Commissioners will review the results of the survey and will discuss it at their next meeting. Therefore, I respectfully decline the Board's invitation at this time. However, please feel free for yourself and the board to attend the Board of Water Commissioners next meeting and we'll be happy to answer any of your questions.

Thank you

---

**From:** Kelly Merrill [<mailto:kmerrill@townsend.ma.us>]  
**Sent:** Friday, June 23, 2017 12:34 PM  
**To:** Paul Rafuse <[prafuse@townsend.ma.us](mailto:prafuse@townsend.ma.us)>  
**Subject:** Selectman's Meeting 6/27

Per your conversation with Jim please invite yourself and the Board of Water Commissioners to the Selectman's Meeting Tuesday June 27 @ 6:05 Pm to Discuss the Water Sanitation Survey.

Best ,  
Kelly

*Kelly Merrill, Executive Assistant to the Town Administrator*  
*Email:* [kmerrill@townsend.ma.us](mailto:kmerrill@townsend.ma.us)  
*Town of Townsend*  
*272 Main Street*  
*Townsend, MA 01469-1519*  
*PH:* 978-597-1701  
*FAX:* 978-277-6368  
*Office Email:* [selectman@townsend.ma.us](mailto:selectman@townsend.ma.us)  
*Website:* [www.townsend.ma.us](http://www.townsend.ma.us)  
*Office Hours:* Mon. - Fri. 9am - 4pm & Tues. evenings 6 - 8pm

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## James Kreidler

---

**From:** Jim Kreidler <jkreidler@townsend.ma.us>  
**Sent:** Saturday, June 24, 2017 10:52 AM  
**To:** Gordy Clark; selectmancindyking@gmail.com; sml412@comcast.net  
**Subject:** Fwd: Selectman's Meeting 6/27

FYI.

Sent from Jim's iPhone

Begin forwarded message:

**From:** "Paul Rafuse" <prafuse@townsend.ma.us>  
**Date:** June 24, 2017 at 9:58:03 AM EDT  
**To:** "Kelly Merrill" <kmerrill@townsend.ma.us>  
**Cc:** "James Kreidler" <jkreidler@townsend.ma.us>, "Nathan Mattila" <generic556@gmail.com>, "Steven Doucette" <steve@dandllaw.com>  
**Subject:** RE: Selectman's Meeting 6/27

Kelly/Jim,

Please thank the board for their invitation and we appreciate their concern. The Board of Water Commissioners will review the results of the survey and will discuss it at their next meeting. Therefore, I respectfully decline the Board's invitation at this time. However, please feel free for yourself and the board to attend the Board of Water Commissioners next meeting and we'll be happy to answer any of your questions.

Thank you

---

**From:** Kelly Merrill [mailto:kmerrill@townsend.ma.us]  
**Sent:** Friday, June 23, 2017 12:34 PM  
**To:** Paul Rafuse <prafuse@townsend.ma.us>  
**Subject:** Selectman's Meeting 6/27

Per your conversation with Jim please invite yourself and the Board of Water Commissioners to the Selectman's Meeting Tuesday June 27 @ 6:05 Pm to Discuss the Water Sanitation Survey.

Best ,  
Kelly

*Kelly Merrill, Executive Assistant to the Town Administrator*  
*Email: kmerrill@townsend.ma.us*  
*Town of Townsend*  
*272 Main Street*  
*Townsend, MA 01469-1519*  
*PH: 978-597-1701*  
*FAX: 978-277-6368*  
*Office Email: selectman@townsend.ma.us*

**Website:** [www.townsend.ma.us](http://www.townsend.ma.us)

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## James Kreidler

---

**From:** Cindy King <selectmancindyking@gmail.com>  
**Sent:** Saturday, June 24, 2017 11:00 AM  
**To:** Jim Kreidler  
**Subject:** Re: Selectman's Meeting 6/27

Can we post and circulate the report?

On Sat, Jun 24, 2017 at 10:51 Jim Kreidler <[jkreidler@townsend.ma.us](mailto:jkreidler@townsend.ma.us)> wrote:

FYI.

Sent from Jim's iPhone

Begin forwarded message:

**From:** "Paul Rafuse" <[prafuse@townsend.ma.us](mailto:prafuse@townsend.ma.us)>  
**Date:** June 24, 2017 at 9:58:03 AM EDT  
**To:** "'Kelly Merrill'" <[kmerrill@townsend.ma.us](mailto:kmerrill@townsend.ma.us)>  
**Cc:** "James Kreidler" <[jkreidler@townsend.ma.us](mailto:jkreidler@townsend.ma.us)>, "Nathan Mattila" <[generic556@gmail.com](mailto:generic556@gmail.com)>, "Steven Doucette" <[steve@dandllaw.com](mailto:steve@dandllaw.com)>  
**Subject:** RE: Selectman's Meeting 6/27

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Thank you

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**From:** Kelly Merrill [<mailto:kmerrill@townsend.ma.us>]  
**Sent:** Friday, June 23, 2017 12:34 PM  
**To:** Paul Rafuse <[prafuse@townsend.ma.us](mailto:prafuse@townsend.ma.us)>  
**Subject:** Selectman's Meeting 6/27

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Best ,

Kelly

*Kelly Merrill, Executive Assistant to the Town Administrator*

Email: [kmerrill@townsend.ma.us](mailto:kmerrill@townsend.ma.us)

Town of Townsend

272 Main Street

Townsend, MA 01469-1519

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June is LGBT Pride Month

Cindy King  
Selectman

Town of Townsend, MA 01469

978-503-7456

FAX: 888-418-6397



