Massachusetts Department of Environmental Protection
Drinking Water Program

WEIR RIVER WATER SYSTEM
Hingham, MA

Water Supply Business Plan

for

New Community and Non-Transient
Non-Community Public Water Systems

PWS NAME: Weir River Water System
(formerly known as the Hingham Water System)

CITY/TOWN: Hingham MA

PWS ID #: #4131000

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Background Info

Send Correspondence To:

Name: Thomas Mayo *Title: Town Administrator*

Address: Town Hall, 210 Central Street, Hingham, MA 02043

Telephone: (781) 741-1400 e-mail: mayot@hingham-ma.gov

Water Commissioners/Selectmen/Governing Body Member:

Name: Karen Johnson Title: Board of Selectmen Chair
Address: Town Hall, 210 Central Street, Hingham, MA 02043
Telephone: (781) 741-1400 e-mail: johnsonk@hingham-ma.gov

Note Key Official And Consultant To See Regarding Changes, Improvements, Etc.

Name: Ryan Trahan, PE *Title:* Principal
Address: Environmental Partners Group,
1900 Crown Colony Drive, Suite 402, Quincy, Massachusetts 02169
Telephone: (62) 657-0253 e-mail: rjt@envpartners.com

1. Administration

A. PWS Organization

1. Ownership/Governing Body (check applicable category and complete names, addresses, telephone numbers, # of members)

☑ *Water Commissioner* #3 ☐ *Board of Public Works* #___
☐*Selectmen* #___ ☐ *Operator* #___
☐ *Trustees* #___ ☐ *Other responsible parties* #___
☐ Town Manager #___ ☐ Public (Town/City/District/State #___

Name	***Address***	***Phone Number***	***E - Mail***	***Term (Yrs)***
Karen Johnson, Chair	210 Central Street, Hingham	(781) 741-1400		3 Yrs (2020)
Mary Power	210 Central Street, Hingham	(781) 741-1400		3 Yrs (2021)
Joe Fisher	210 Central Street, Hingham	(781) 741-1400		3 Yrs (2022)

2. Number of Governing Body meetings for the year & Dates: Typically held once/month (12/year) on Tuesdays.

3. If an organizational chart, is available, please provide OR (put on blank page) identifying the hierarchy of decision making for the PWS. All policy decisions for the water system rules and regulations and financing are made by the Board of Selectmen, acting as the Water Commissioners

B. Operator Staffing

1. Grade of system: 3D, 4T *(please see 310CMR22.11B(4) regarding system classification. DEP will verify system classification for official recording)*

2. *Provide staffing plan of all certified operators or complete information below.*

Following a proposal solicitation Hingham selected Suez Water Environmental Services to perform the water system operations. The Agreement between the Town and Suez is close to being finalized. When it is completed Suez intends to interview all of the Aquarion staff to determine their interest in continuing with the water system operations. Once Suez' overall staffing plan is identified this information will be provided to DEP and incorporated into this Business Plan. The Suez Project Manager and Assistant Project Manager assigned to the Weir River Water System operations are listed below, and their resumes are provided in Attachment A.

Name/Title	*F/P**	*Duties*	*Certification/ Grade*	*Total Years Experience*	*DEP Comments*
Mark LaVoie	F	Project Manager	4T	25	
Jeff Priest	F	Assistant Project Manager	3D/2T	13	
Michael Leahy	F	Regulatory communications; customer relations	3D/2T	37	

F/P = Full Time / Part Time

1. *Personnel Distribution Coverage: (Number of operators and grade certification)*

Weekdays: Full-time, 24-hour/day coverage Monday-Friday;
Shifts: Three shifts: 7:00 am – 3:00 pm, 3:00 pm-11:00 pm, 11:00 pm-7:00 am
Weekends and Holidays: Staff are onsite at treatment plant and supported by automated (SCADA) coverage; staff for distribution are on-call.

2. *Who is directly responsible for the following?*

Emergency operations Michael Arruda phone: 508-916-0181
Communications with state regulators Michael Leahy phone: 201-538-0225
Customer relations Michael Leahy phone: 201-538-0225
Media relations: Hingham Transition & Evaluation Committee phone: (781) 741-1400

3. *Is there an Operator Training Budget? Yes*

C. Policy Related Activities

1. *Who sets the system's operating policies?*

☐ *Owner* ☑ *Board of Selectmen/Water Commissioners*
☐ *General Manager* ☐ *Operator*
☐ *Other* _____

2. *Do you have or are you developing policies or Standard Operating Procedures (SOP) for the following situations:*

Description

Connections / New Hookups	☑ *YES*	☐ *NO*	Water System Regulations
Water Main Extensions	☑	☐	Water System Regulations
General Purchases	☑	☐	Massachusetts procurement laws
Purchases over $10,000	☑	☐	Massachusetts procurement laws
Metering & Unaccounted-for Water	☑	☐	Water System Regulations
Delinquent Bills	☑	☐	Water System Regulations

3. *Do you have a written Capital Improvement Plan (CIP) and / or a written Infrastructure Improvement Plan?*

Capital Improvement Plans have been prepared by Aquarion that have been made available to the Town as part of the water system purchase. These include Aquarion's Capital Improvement Plans for 2017-2021 (provided in Attachment B), Capital Efficiency Plans prepared for Aquarion by Tata & Howard in 2007, 2011 and 2014, and filings by Aquarion with the Department of Public Utilities (2018).

Hingham intends to perform a comprehensive evaluation of the water system during the first year of their ownership of the system (e.g., FY 2021) to identify those items necessary to remain in compliance with the DEP regulations, and to develop a CIP that reflects these needs. The Town's planning will be informed by those capital plans and reports provided by Aquarion.

4. *Do you have insurance?*

Insurance coverage by the System Operator (Suez):

Liability: General: $1 Million; In Aggregate Minimum $2 Million
Excess Umbrella Liability: not less than $10 Million
Automobile Liability: not less than $1 Million
Environmental/Pollution: not less than $1 Million

The Town of Hingham is listed as an additional insured on these policies.

5. *Do you have a contractual or as-needed arrangement with any of the following outside services?*

☑ *Accountant*	☑ *Certified Operator*	☑ *Laboratory*
☑ *Attorney*	☑ *Technical Consultant*	☐ *Other* _____

2 Basic Planning Data, and Demand

A. General Data

Total number connections: 12,715 % Metered: 100%
Equivalent Residential Units: 12,039 *Population:* Approximately 54,612

B. Water Demand

Estimated daily consumption: Maximum (mgd): 6.3 mgd *Average (mgd):* 3.510 mgd
Projected population in 20 years: 61,326 *Projected average daily demand(mgd):* 4.17 mgd

C. Municipalities/District Served by Water Supply

Municipality/District	Total Population	Population Served	Average Consumption
Hingham, Hull and Cohasset	54,612 (35,803 Hingham, 10,293 Hull, 8,516 Cohasset)	30,523 winter; 41,082 summer (from 2018 ASR)	63 rgpcd

D. Permanent Interconnections with Other Water Supplies

Water Survey Purveyor	Give location and arrangement for use. What is the maximum daily flow in mgd for this interconnection?
Cohasset Water Department	Interconnections at Whitney Crossing (pump station, Valve 4614), Forest Avenue (Valve 4592) and Jerusalem Road (Valve 2040). For service to Cohasset customers. Also to serve Hingham Campus (Linden Ponds) with up to 306,000 gpd of finished water in accordance with the Wheeling Agreement between Town of Cohasset and Hingham Campus.
Weymouth Water Department	Interconnections at High Street (Vault 4437) and Commercial Street (Valve 127-129) (for emergency use).
Norwell Water Department	Route 228 near Accord Pond (near Valve 4841) (for emergency use).

3. Financial

A. Financial Information - FY 2021 From: 7/1/2020 To: 6/30/2021

If you are not a rate-collecting system, please briefly describe the system's financial organization, including the billing and bookkeeping department. _____

B. Source of Revenue (rate-collecting systems only)

1. *Explain the water rate structure of your system?* For the first year of operation the Weir River Water System will utilize the Aquarion water rate structure currently in place. During that time Hingham intends to perform a cost of service study that will inform future water rates (both amounts and rate structure). The rates are an increasing block rate structure for residential (R1), commercial (G1), public authorities (G2), industrial (G3) and non-residential (G4) customers. The rates include a base fee, rates for fire protection, miscellaneous fees, other services and surcharges. Billing is done quarterly at a minimum. Attachment C provides the rates and fees from the pending Weir River Water System Rules and Regulations.

2. *Who approves expenditures?* Tom Mayo *Title:* Town Administrator
   Who is the responsible financial officer (i.e. signs the checks, responsible for the books, etc.)

   Mr. Mayo has authority to approve expenditures up $50,000. Expenditures greater than $50,000 are approved by the Water Commissioners. Susan M. Nickerson_, Town Accountant, is responsible for the books.

3. *Will you employ enterprise accounting?* ☑ *YES* ☐ *NO*

4. *Will you have a reserve/ emergency account?* ☑ *YES* ☐ *NO*
   If yes, how much? The Enterprise Fund budget for FY 2021 has an unbudgeted revenue surplus of $2,332,206. This surplus serves as the emergency account for the system.
   What percentage of your total estimated expenses is this? 28%.

5. *How did you (will you) finance your last (and next) major repair or improvement?*

Prior to Hingham assuming ownership of the water system all repairs and improvements were made by Aquarion and there is no carryover of these projects costs from Aquarion to Hingham with their purchase of the water system. As owners of the system, Hingham will be allocating $250,000 per year as part of the Enterprise Fund budget for capital improvements. In addition, Hingham intends to bond a minimum of $2,700,000 each year for capital improvements. This annual investment is to be increased every three years by 5%. The Town's long-term financial proforma for the water system assumes this annual investment is made for at least the next 30 years.

	Last	*Next*	*Amount*
Bonds	_____	*$ 2,700,000/yr*	*$ 2,700,000/yr*
Personal Capital	_____	_____	*$*_____
Reserve Fund	_____	_____	*$*_____
Annual Budget (Enterprise Fund)	*N/A*	*$ 250,000/yr*	*$ 250,000/yr*

6. *If a budget is available, provide it and proceed to Table A. If not, please fill out Questions #8 through #10 below.* Attachment D provides the FY 2021 Enterprise Fund budget for the Weir River Water System.

C. Estimated Income/Revenue (rate-collecting systems only)

7. *Please list all projected income and revenue for the first year.*

A. Taxes	*$*_____
B. Flat Fee	*$*_____
C. User Fee	*$*_____
D. Other: _____	*$*_____
E. TOTAL INCOME	**$**_____

D. Estimated Operation Expenses (all systems)

8. *Please list all projected operating expenses for the first year.*

A. Personnel / Overtime	*$*_____
B. Water Quality Testing	*$*_____
C. Supplies	*$*_____
D. Operating Expenses	*$*_____
E. Contract Services	*$*_____
F. Repairs	*$*_____
G. Reserve / Emergency Fund	*$*_____
H. Debt Service (Principal & Interest)	*$*_____
I. TOTAL EXPENSES	***$***_____

9. *Total Income (Section C)* *$*_____ *minus*

10. *Total Expenses (Question D.1)* *$*_____ *equals* *$0*

Financial Table A – Estimated Needs (all systems)

List all projects that you may need to address in the next 10 years to remain in compliance with DEP regulations.

Capital Improvement Plans have been prepared by Aquarion, which Hingham is receiving as part of the water system purchase. These include Aquarion's Capital Improvement Plans for 2017-2021 (provided in Attachment B), Capital Efficiency Plans prepared for Aquarion by Tata & Howard in 2007, 2011 and 2014, and filings by Aquarion with the Department of Public Utilities (2018).

Hingham intends to perform a comprehensive evaluation of the water system during the first year of their ownership of the system (FY 2021) to identify those items necessary to remain in compliance with the DEP regulations, and to develop a Capital Improvement Plan that reflects these needs. Aquarion's previous CIP planning efforts described above will be used to inform the Town's in their capital planning effort.

Financial Table B - Capital Debt (all systems)

Capital Improvement	Funder	Loan Amount	Annual Payment	Finish Date
System Acquisition Short-term Borrowing	Not yet determined	$114,000,000	$1,539,000	FY 2022 (One Year Borrowing)
System Acquisition Long-term Borrowing	Not yet determined	$114,000,000	$5,437,663/yr (level payment)	2051 (29 year borrowing)
Capital Replenishment	Not yet determined	$2,700,000	P = $ 135,000/yr (level) I = $ 60,750 (declining)	2040 (20 year borrowing)

Financial Table C - Capital Costs (all systems)

Use this table to estimate what your capital cost will be in each year by combining all the capital costs that occur in a particular year.

Hingham is committed to an ongoing annual investment of a minimum of $2.7 Million into the water system for capital improvements and has incorporated this commitment in their financial proforma for the next 30 years. The operating assumption for this proforma is that this annual investment will begin in Fiscal Year 2021, increasing by 5% every third year, as shown in the table below (this table presents the Capital Improvement investment for the first 10 years of their ownership of the system through FY 2030).

The specific improvements to be made will be informed by the comprehensive capital study that the Town will be performing during the first year of ownership of the system.

Year	Cost
FY 2021	2,700,000
FY 2022	2,700,000
FY 2023	2,700,000
FY 2024	2,835,000
FY 2025	2,835,000
FY 2026	2,835,000

Year	Cost
FY 2027	2,977,000
FY 2028	2,977,000
FY 2029	2,977,000
FY 2030	3,126,000

4. System Description

A. General

Describe briefly but completely the water supply from each separate source to the distribution system, giving for each source the various treatment processes proposed in order of occurrence. This description should be complete but simple and clear so as to be understandable by one unfamiliar with the supply. Indicate the availability of emergency power necessary to operate all portions of the supply. (Draw flow diagram on reverse side show bypass arrangements.) Show the location of all sources of supply, treatment facilities and outline the area owned by the public water supply on a 7.5 minute, U.S.G.S. Topographic Map. In addition, list all current public water supply permits including permit number, date issued, short summary of permitted facilities and available plans.

The Hingham Water Company was incorporated in 1879. It was acquired by Aquarion in 2002. On April 22, 2019 the Town of Hingham Annual Town Meeting voted to acquire the Hingham Water Company pursuant to Chapter 139 of the Acts of 1879 (as amended). The water system is to be managed by a Water Superintendent under the direction of the Board of Water Commissioners and/or Town Administrator and is to be privately operated and maintained by Suez Water Environmental Services under a minimum 5-year operations contract with the Town.

System Overview

As of year-end 2018, the Hingham water system served 13,196 customers: 8,211 in the Town of Hingham, 4,647 in Hull, and 338 in North Cohasset.

A plan showing the water system sources, treatment plant, storage tanks and distribution system is provided in Figure 1. The sources serving the system consist of one reservoir (Accord Pond) and six groundwater sources (Downing Street, Free Street (two well fields), Prospect Street, Scotland Street, Fulling Mill Station). These are all registered sources and are located in the Weir River watershed. Withdrawals are authorized by the system's Water Management Act Registration Statement for 2008 – 2017 (WMA #41913101), a copy of which is provided in Attachment E. The Registration Statement allows withdrawals up to 1,281.15 Million Gallons per Year (MGY), which represents an average of 3.51 Million Gallons per Day (MGD). During 2018, the average daily production was approximately 3.35 million gallons.

The water from all of these sources is pumped to a water treatment plant located at 900 Main Street in south Hingham, with the exception of the Downing Street well that pumps directly into the water system. Storage is provided by two tanks: the Turkey Hill tank and the Accord Tank. The system also includes a pressure booster station in Hull (at Beacon Road/Nantasket Ave), a booster station in Hingham (Baker Hill at Squirrel Avenue) and approximately 192 miles of water mains. The distribution system is divided into two zones: the

Main Service Zone serving north Hingham, Hull, and Cohasset; and the High Service Zone serving south Hingham.

Water Supplies (Well Fields and Reservoir)

All of the supplies serving the water system were in operation prior to 1985 and are therefore Registered Sources. The location of the six wellfields and the Accord Pond reservoir serving the water system is shown on Figure 1.

The Scotland Street Well was constructed in 1956 and is a 45-foot deep, gravel packed well located off Scotland Street with an approved pumping rate of 1.55 MGD. The Scotland Street Replacement Well #1A was built in 2008 and is a 58-foot deep, gravel-packed well with a DEP approved pumping rate of 1.55 MGD.

The Downing Street Well was built in 1965 and is a 66-foot deep, gravel packed well located off Downing Street with a DEP approved pumping rate of 0.41 MGD. The Downing Street Well Station is the only supply in the water system that pumps directly into the distribrution system, and is treated at the source with sodium hypochlorite, sodium fluoride, and a blended phosphate injection for disinfection and pH adjustment.

The Prospect Street Well was built in 1971 and is a 58-foot deep, gravel packed well located off Elaine Road with an approved pumping rate of 0.39 MGD.

There are two Free Street wellfields: a) Free Street Well #2, 2A and 4, and b) Free Street Well #3 and 5.

Free Street Wells 2, 2A and 4. These are all gravel packed wells. Well 2 was constructed in 1952 to a depth of approximately 73 feet. Well 2A is a replacement well installed in 2007 to a depth of approximately 79.5 feet. Well 4 was constructed in 1983 to a depth of approximately 86 feet. In November 2008, the DEP approved a status change of Wells 2 and 4. Well 2 was changed from an active source to an emergency source, and Well 4 was changed to an active source with a total maximum daily withdrawal of 0.81 MGD. The total combined volume to be withdrawn from Wells 2 and 4 cannot exceed 1.80 MGD.

Free Street Wells 3 and 5. These are also gravel packed wells. Well 3 was constructed in 1967 to a depth of 88.5 feet. Well 5 was constructed as a satellite well to supplement lost capacity of Well 3, and it pumps to Well 3 and subsequently to the water treatment facility. The MassDEP approved pumping rate for these wells is 351 gpm or 0.51 mgd.

The Fulling Mill Station is located at 93 South Street. It originally consisted of seven infiltration basins that fed a shallow 1,000 foot long horizontal well that was constructed in 1903 to a depth of approximately 21.5 feet. Two gravel-packed replacement wells were installed in 2008. Replacement Well #1 is a 48-foot deep well with a DEP-approved pumping rate of 0.62 MGD. Replacement Well #2 is a 42-foot deep well with a DEP-approved pumping rate of 0.38 MGD.

The Accord Pond reservoir is located off of Whiting Street. This is a 100-acre pond with a total storage capacity of approximately 523 million gallons and a drainage basin area of 1.01 square miles. The intake pipe is a gravity line to the treatment plant. Accord Pond has an estimated sustainable yield of 3.0 mgd for 80 days as reported in system's WMA Registration Application. The estimated safe yield of the pond is approximately 0.69 mgd.

Treatment

The treatment plant is a 7.7 mgd facility that has been in operation since 1996. It treats water from all of its supply sources except the Downing Street Well. Raw water is treated by rapid mix, Superpulsator clarifiers, deep-bed granular activated carbon filters and post-filtration disinfection, pH adjustment and fluoridation. The facility also includes a holding tank for treated water to improve water pressure in the system during high demand periods. Rated at level 4T, the plant utilizes Aveva Wonderware Supervisory Control and Data Acquisition (SCADA) software to support their operations. Sludge generated by the treatment process is dewatered by two centrifuges.

Storage Tanks

The location of the Accord Pond and Turkey Hill storage tanks is shown on Figure 1. The Accord Pond storage tank, installed in 1967, is located off Route 228 at the intersection of Whiting Street on Town-owned property. The tank is an elevated, welded steel-type with a 0.75 Million Gallon capacity. The elevated bowl has a diameter of 58 feet and the overall height of the storage tank is approximately 112 feet. It has an overflow elevation of 282 feet and is connected to the system through a 16-inch water main.

The Turkey Hill storage tank, installed in 1996, is located off of Turkey Hill Lane on Town-owned property. The tank is a ground level storage, welded steel-type standpipe with a 2 Million Gallon capacity. The standpipe has a diameter of 70 feet and an overall height of 70 feet. It has an overflow elevation of 240 feet and is connected to the system through a 20-inch water main.

Distribution System

The water distribution system, rated at level 3D, includes two booster stations, two pump stations, and approximately 192 miles of water mains. The average age of water mains is 64.4 years. The distribution system is divided into two zones: the Main Service Zone serving north Hingham, Hull, and Cohasset; and, the High Service Zone serving south Hingham.

The water system has emergency interconnections with Cohasset and Weymouth. Since 2004 a 20-year Wheeling Agreement has been in place between Aquarion (as the then operators of the water system), the Town of Cohasset, and Hingham Campus LLC, aka Linden Ponds, an age-restricted housing development in south Hingham. With the exception of the named parties (Aquarion becomes the Town of Hingham), this Wheeling Agreement will remain unchanged under the Town's ownership of the water system. Under the terms of the Wheeling Agreement, Cohasset delivers up to 306,000 gallons per day of purchased water to the distribution system through an interconnection on Route 3A near the Hingham-Cohasset border.

Unaccounted for Water (UAW) has been a persistent issue within the system for several years and the Town anticipates spending at least $2.7 million annually on capital improvements to the system, with the goal of reducing UAW to 10% or less to meet the conditions of their Water Management Act Registration Statement. Over the last several years UAW has been reduced from 23% in 2013 to 12% in 2018, as reported in the DEP Annual Statistical Reports for those years.

Permits

The following permit has been received for the Hingham water system:

- Water Management Act Registration Statement (#41919101), July 3, 2008

Peddocks Island

Hull Booster Pump Station

Jerusalem Road Interconnection

Forest Avenue Interconnection

Whitney Crossing Interconnection

Turkey Hill Tank

Baker Hill Booster Pump Station

Main Service Area

Commercial Street Interconnection

High Street Interconnection

Distribution Pressure Zone Boundary

Service Boundary

Downing St. Well

Free St. #2 Well

Free St. #2A Well

Free St. #4 Well

Free St. #3/5 Well

Fulling Mill Cistern

Fulling Mill #1 Well

Fulling Mill #2 Well

Water Treatment Plant

Accord Brook

Prospect St. Well

Scotland St. #1 Well

Scotland St. #1A Well

High Service Area

Norwell Interconnection

Accord Tank

Accord Pond

Legend

- Water Supply Source
- Pressure Zone Boundary
- Boosted Pressure Zones
- Town Boundary

Water Mains

- Private
- <4"
- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- 20"
- 24"

0 2,800 5,600 11,200 Feet

1 inch = 1,400 feet

N W E S

Environmental Partners GROUP

A partnership for engineering solutions.

Water System Map
Town of Hingham Water Department

B. Source Information – Pumping Stations

Pumping Facility		Regular	Emergency
A	LOCATION: NANTASKET AVENUE/BEACON ROAD, HULL (BEACON ROAD BOOSTER STATION)	1	0
	FUNCTION: PROVIDES DOMESTIC PRESSURE WHEN THERE ARE HIGH DEMANDS IN HULL.		
B	LOCATION: SQUIRREL HILL LANE, HINGHAM (BAKER HILL BOOSTER STATION)	5	1
	Function: INCREASES PRESSURE FOR THE BAKER HILL DEVELOPMENT		
C	LOCATION: ACCORD POND, HINGHAM (ACCORD POND PUMPING STATION)	3	0
	Function: PUMP FOR THE RESERVOIR		
D	LOCATION: SOUTH PLEASANT STREET, HINGHAM (FULLING MILL PUMP STATION)	2	0
	FUNCTION: PUMP FROM WELL FIELD SUPPLY TO THE TREATMENT PLANT		

Pumping Facility	Type	Date Installed	Standby/ Emergency Power	Capacity (GPM)	SUCTION			DISCHARGE			MOTOR		
					Size (in)	Combined or Separate	Head (ft)	Size (in)	Combined or Separate	Head (ft)	HP	Source of Power	Auto/Manual
A #1	Hor Cent	June 1999	N	700	6	Separate		4	Separate		20	460VAC/3 Phase	
B #1	Hor Cent	May 2006	Y	450	8	Combined		8			50	480VAC/3 Phase	Auto
C #1	Hor Cent	February 2016	Y	1,400	8	Combined	40	5			40	460VAC/3 Phase	Auto
D #1	Hor Cent	March 2015	Y	1,000	5	Combined		5	Combined		50	460VAC/3 Phase	

C. Treatment

Chemical Feed

1. *Do chemical feed facilities provide adjustable feed ranges that are easily set for operation at all required dosages?* ✓ Yes ☐ No
2. *Who will maintain and/or operate chemical feed?* *Michael Arruda, Grade 4T*
3. *Is 110% containment provided for all chemical tanks?* ☑ Yes ☐ No
4. *Is the chemical feed equipment in a separate room?* ☑ Yes ☐ No
5. *Is it properly ventilated?* ☑ Yes ☐ No
6. *Are the feed lines color coded?* ☑ Yes ☐ No
7. *Can chemical storage be measured?* ☑ Yes ☐ No
8. *Is there adequate chemical containment?* ☑ Yes ☐ No
9. *Is there an eye wash and/or shower?* ☑ Yes ☐ No
10. *If phosphates are used is a chorine residual maintained in the feed?* ☐ Yes ☐ No ☑ Not Applicable
11. *If fluoride is used is an upflow saturator used*? N/A ☐ Yes ☐ No ☑ Not Applicable

CHEMICAL FEED EQUIPMENT

Plant Name: Hingham/Hull District WTF

Source: Free St Wells #5, #2A, #2, #3, #4; Scotland St Well #1, #1A; Fulling Mill Well #1, #2, Collection Basins; Accord Pond; Accord Brook; Prospect Well.

Chemical(s)	Point of Application of Unit	Chemical Feed Unit			Feed					Operation				Scales	
		Reg	Emer	anti-Siphon Valve	Solution	Dry	Range mg/l	Average used lbs/day	Supply (Days)	Auto-matic	Manual	X-Conn	Pacing	Yes	No
Potassium Permanganate	Prior to Oxidation Basins	X	X	X	X		0.1 – 5.0	86.0	30	X			X		X
Aluminum Sulfate	Rapid Mix	X	X	X	X		5.0 – 100	1,467.8	15	X			X		X
Calcium Hydroxide (Lime)	Prior to Oxidation Basins	X	X	X	X		1.0 – 35.0	358.7	60	X			X		X
	Rapid Mix	X	X	X	X		1.0 – 35.0	358.7	60	X			X		X
	Sludge Cake Pumps	X	X	X		X	As Needed			X			X		X
Polymer	Rapid Mix Effluent Weir	X	X	X	X		0.05 – 0.5	11.01	60	X			X		X
	Filter Influent	X	X	X			0.05 – 0.5	7.34	60	X			X		X
	Prior to Centrifuge	X	X	X			2.0 – 50.0	-	60	X					X
	Spent Washwater	X	X	X			As Needed			X					X
Sodium Hypochlorite	Prior to Oxidation Basins/Filters	X	X	X	X		0.3 – 5.0	83.4	30	X					X
	Primary Disinfection	X	X	X			0.3 – 5.0	91.7	30	X					X
	Final Disinfection	X	X	X			0.3 – 5.0	91.7	30	X					X
	Recycle Water	X	X	X			1.0 – 5.0	6.7	30	X					X
Sodium Carbonate	Prior to Static Mixer	X	X	X	X		1.0 – 25.0	184.0	30		X				X
Zinc Orthophosphate	Prior to Static Mixer	X	X	X	X		0.36 – 3.6	55.0	30				X		X

Hydrofluosilicic Acid	Prior to Static Mixer	X	X	X	X		1.0	33.4	180		X		X		X

Plant Name: Downing Street GP Well WTP

Source: Downing Street GP Well

Chemical(s)	Point of Application of Unit	Chemical Feed Unit			Feed					Operation				Scales	
		Reg.	Emer.	anti-Siphon Valve	Solution	Dry	Range mg/l	Average used lbs/day	Supply (Days)	Auto-matic	Manual	X-Conn	Pacing	Yes	No
Blended Phosphate and Sodium Hypochlorite	Pump Discharge	X	X	X	X		As Needed			X					X
Sodium Fluoride	Pump Discharge	X	X	X	X		As Needed			X					X

D. Treated Water Storage

Storage Unit	Type of Storage				Location of Storage			Frequency of Inspections	Date Last Cleaned	Material of Construction	Capacity (m-gal)
	Under-ground	Ground Level	Elevated	Hydro-pneumatic Tank	Plant/ Pump house	Distribution System	Condition of Tank				
Accord Pond Tank			X			X	Good sanitary and structural condition; Interior and exterior coating is poor (2015 Assessment)	Monthly storage tank inspections; Annual rooftop inspections	Unknown	Steel	0.75
Turkey Hill Tank		X				X	Good sanitary and structural condition; Interior and exterior coating is poor (2015 Assessment)		Unknown	Steel	2.00
Hingham/Hull District WTF Clearwell		X			X		Exterior looks good (2015 Assessment)		Unknown	Concrete	0.43

Storage Unit	Protection and Safety						Site Protection			
	Proper Over-Flow Structure	Covered/ Locked	Vented/ Screened	Sample Tap	High Level Control/ Alarm	Low Level Control/ Alarm	Flood	Runoff	Fenced	Tank Overflow Elevation
Accord Pond Tank	X	X	X	X	X	X	X	X	X	282 ft
Turkey Hill Tank	X	X	X	X	X	X	X	X	X	240 ft
Hingham/Hull District WTF Clearwell	X	X	X	X	X	X	X	X	X	119 ft

1. *Can each storage unit be bypassed for repair and cleaning without interrupting service?* ☑ Yes ☐ No
2. *Is there sufficient storage for fire protection?* ☑ Yes ☐ No

E. Distribution System

1. Maps and Records

A. Attach a distribution system map, showing valve and hydrant locations in addition to water main location and diameters. A plan of the distribution system is provided in Figure 1.

B. Are there dead end areas in the distribution system? ☑ Yes ☐ No

If yes how many? See plan of water distribution system (Figure 1).
Are terminal hydrants available on dead ends?

C. Show the proposed coliform bacteria sampling locations on the Distribution Map.

See Attachment F. Coliform Sampling Plan.

D. Describe the proposed flushing program.

The System Operator is required to conduct a system-wide flushing program annually. A plan of action is to be reviewed and approved by the Water Superintendent. *The program should address the dead end areas.*

Aquarion has performed annual flushing of the distribution system each year by segmenting the system into three flushing zones. The flushing program is conducted during the spring and fall of each year to ensure that each of the three zones are flushed within each year. The Town intends to continue this flushing program under the direction of the Superintendent, following a plan that will be reviewed and approved by Superintendent.

E. Include the locations, type and size of master meters on the distribution system map.

The master meter information is available and will be incorporated into the distribution system map after the Town accepts ownership of the system. A plan of the existing distribution system is provided in Figure 1. Once updated with the master meter information, this plan will be provided to DEP.

Distribution System Data

PIPE USED IN WATER SUPPLY

Portion of Transmission line and Distribution System	Source	Type of Pipe	Miles of Pipe	Pipe Diameter (inches)	Date Line Installed
27.6%		Ductile	53.38	4”,6”,8”,12”,14”,16”,20”,24”	1960-2018
1.4%		Lock Joint	2.66	16”, 20”	1950-1969
28.4%		Cast Iron	54.97	3”,4”,6”,8”,10”, 12”,14”,16”,20”	1890-1969
25.1%		Cast Iron Cement Lined	48.51	2 ¼”, 4”, 6”, 8”, 12”, 16”, 20”	1960-1989
14.0%		Transite	27.08	6”, 8”, 12”	1940-1969
1.0%		HDPE	1.22	6”, 8”, 12”	NA
2.4%		Galvanized Steel	4.68	¾”, 1”, 1¼”, 1½”, 2”, 3”, 4”, 8”	1890-1979
0.3%		Plastic	0.66	1”, 2”, 3”, 4”	1970-2018
0.0004%		Copper	0.07	¾”, 1”	NA

PRESSURE

Location	Pressure in Distribution System (psig)	Minimum (must be >20 psig)	Maximum (psig)
Hingham/Hull District WTF	82	45	95
Accord Pond to WTF	10	5	10
Fulling Mill Wells #1 and #2 to WTF	40	35	45
Fulling Mill Cistern to WTF	40	35	45
Scotland Street Wells #1 and #1A to WTF	8	5	10
Downing Street Well	82	80	95
Prospect Street to WTF	10	5	10
Free Street Wells #2, #2A, #3, #4 and #5 to WTF	55	50	60

5. Operations and Maintenance

A. General

How will maintenance be scheduled?
The system operator will conduct routine maintenance on the water supplies, treatment tank and storage tank in accordance with the Standard Operating Procedures and Operations and Maintenance documents provided in Attachment G . The operator will also perform routine maintenance on the distribution system (exercise gates and valves, etc.)

1. Spare Parts Inventory

   What are the spare parts inventory? An inventory of spare parts is available for all chemical feed pumps, mixers and drive belts, spare pumps for the Free Street wells 4 and 2A, the centrifuge system and the SCADA system (radio, PLC I/O cards, power supply, etc.). Once the Town assumes ownership of the water system the system operator, under the direction of the Water Superintendent, will update the spare parts inventory to ensure that an appropriate inventory is maintained.

   Is it adequate to prevent long delays in equipment repairs? ☑ Yes ☐ No

2. Pump Maintenance

Is a maintenance schedule available for pump?	☑ Yes	☐ No	
valves?	☑ Yes	☐ No	
chemical feed pump?	☑ Yes	☐ No	
turbine pumps?	☐ Yes	☐ No	Not Applicable
high and low lift pumps?	☑ Yes	☐ No	

   Have pump maintenance records been prepared (forms only)? ☑ Yes ☐ No

3. Operation and Maintenance Manual

   Is an O & M Manual available and accessible to staff? ☑ Yes ☐ No
   (Provided in Attachment G)

   Does manual conform to DWS policy? ☑ Yes ☐ No

   Does manual provide guidance for operational decisions? ☑ Yes ☐ No

4. Instrumentation/Process Automation

   Are there alarms or instrumentation for process automation? (Such as chlorine, turbidity, etc.) List. ☑ Yes ☐ No

   Do you have agreements in place for outside support/contractors for service/updating of instrumentation? ☑ Yes ☐ No

5. Safety and Protective Equipment

Are there adequate safety and personnel protective equipment provided? ☑ Yes ☐ No

B. Distribution Protection - Cross Connection Program

1. Complete the attached cross connection control program plan. See Attachment H

2. Will *a third party be used to survey or test as part of your programs?* ☑ Yes ☐ No
If yes, Name & contact person. *Mark Lavoie, CCCP*

3. Have all industrial, commercial, and institutional facilities been surveyed by the PWS?

☑ Yes ☐ No

If no, what is the estimated completion date for surveying all facilities?

_____

4. Are backflow prevention devices installed at all PWS OWNED locations?

☑ Yes ☐ No ☐ Not applicable

C. Water Quality Monitoring

1. Pumping Test Water Quality Results

Attach the water quality results from the prolonged pumping test.
Attachment I provides Aquarion's Water Quality Reports for 2018 and 2019.

List any water quality parameters, which were found to be above the MCL (Maximum Contaminant Level). _*None*__ _____
_____
_____

Will the water receive treatment? ☒ Yes ☐ No

List the proposed water treatment processes. Oxidation basins, rapid mixers, Superpulsator clarifiers, and deep bed granular activated carbon filters. Post-filtration disinfection, pH adjustment, and fluoridation.

_____

2. Lead and Copper Rule Compliance. See Attachment J - Lead and Copper Sampling Plan

3. Coliform Bacteria Sampling Locations Plan. See Attachment F - Coliform Sampling Plan

4. Water Quality Monitoring Waiver Program

If the water quality monitoring conducted during the pumping test did not detect any Synthetic Organic compounds (SOC's), the system may qualify for a waiver from further testing for SOC's. If you choose to do so, please complete the attached waiver application for SOC monitoring only. The other possible waivers require additional rounds of sampling with no detects before the system is eligible to apply.

Not Applicable.

D. Emergency Plans

1. *Complete the attached Emergency Response Plan Phone and Contact List.*

   See Attachment K - Emergency Response Plan.

E. Water Quantity/Conservation

1. *Does this system have adequate plans for meeting its water quantity for the next twenty years?* ☒ Yes ☐ No

2. *Will the system need a Water Management Act (WMA) withdrawal permit?*

   ☐ Yes ☒ No

   The system water supplies are registered, not permitted, sources.

3. *If a WMA withdrawal permit is required, attach a completed water conservation plan.*

   Aquarion has developed several policies and programs targeted toward water conservation, including a customer conservation program, a water balance program, a leak detection program, and water restrictions that are part of the system regulations.

   The Town intends to continue with all of these conservation measures and programs.

ATTACHMENT A
RESUMES OF WATER SYSTEM OPERATORS

Michael Leahy | PROJECT DIRECTOR

PROFESSIONAL PROFILE

Mr. Leahy has over 37 years of operations and management experience in all phases of the water supply industry including large water treatment systems, transmission and distribution systems, and capital planning and construction. His experience includes the operations, maintenance and management of complex distribution networks for both municipally-owned and utility-owned systems. Throughout his tenure, Mr. Leahy has advanced in his career at SUEZ, holding positions of increasing responsibility within operations and management.

CERTIFICATIONS & PROFESSIONAL AFFILIATIONS

MA Water Distribution 3D

MA Water Treatment 2T Full

MA Water Treatment 3T OIT

NJ Water Treatment T1

NJ Water Treatment T2

NJ Water Distribution W4

Member, American Water Works Association

Professional Experience

Project Manager
(2016 – present)
SUEZ North America; Hyannis, MA

- Oversees the operations and maintenance of the distribution and treatment facilities for the Hyannis Water System, which is served by SUEZ through a public-private partnership
- Overall responsibility for the day to day construction and repairs of transmission and distribution networks
- Responsible for water quality and chemical treatment
- Schedules and oversees weekly, monthly and annual water quality sampling
- Responsible for regulatory compliance

Project Manager, Hoboken Water Services
Manager, System Maintenannce, Jersey City (2012 – 2016)
SUEZ North America; Hoboken and Jersey City, NJ

- Oversaw the operations and maintenance of the distribution facilities for Hoboken Water Services (Class 3 distribution system) and Jersey City (Class 4 treatment and distribution system), cities served by SUEZ through public-private partnerships
- Overall responsibility for the day to day construction and repairs of transmission and distribution networks, which provide potable drinking water to 50,000 residents in Hoboken and 250,000 residents in Jersey City
- Responsible for water quality and chemical treatment of the Jersey City Aqueduct
- Scheduled and oversaw weekly, monthly and annual water quality sampling
- Responsible for regulatory compliance as it relates to the operation of the distribution system
- Directed many projects that helped Hoboken grow by improving its infrastructure and achieving regulatory compliance; worked closely with the City to coordinate company activities and ensure residents are provided the highest quality of water

Manager, System Maintenannce (2009 – 2012)
SUEZ NJ Water Utility; Hackensack, NJ

- Coordinated the daily activities of the construction, operation, maintenance, and repair of Class 4 distribution system facilities

- Responsible for the preparation of annual budget and monitoring budget expenditures throughout the year.
- Oversaw the maintenance of the building and grounds.
- Responsible for sustaining warehouse and inventory procedures.

Superintendent, System Maintenannce & Construction (2001 – 2008)
SUEZ NJ Water Utility; Hackensack, NJ

- Coordinatd the activities of the construction department; prepared work plans for major construction and maintenance projects
- Liaison with municipal, county and state officials to coordinate Company activities with the operations of utilities and jointly resolve matters of mutual concern
- Established and monitored departmental KPIs; championed productivity and efficiency improvement throughout workforce.

Division Foreman, System Maintenannce & Construction (1990 – 2001)
SUEZ NJ Water Utility; Hackensack, NJ

- Oversaw field operations; coordinated and scheduled a variety of maintenance, installation and repair projects.
- Performed and documented safety inspections
- Responded to complaints or problems received from residential, commercial and municipal customers
- Scheduled and ran weekly and bi-weekly departmental meetings

Control Systems Operator, Haworth Water Treatment Plant (1988 – 1990)
SUEZ NJ Water Utility (formerly Hackensack Water Company); Haworth, NJ

System Maintenance, Operations (1982 – 1988)
SUEZ NJ Water Utility (formerly Hackensack Water Company); Hackensack, NJ

Mark Lavoie | PROJECT MANAGER

PROFESSIONAL PROFILE

Mr. Lavoie currently serves as a Technical Support Manager for the Hyannis Water System. He has 25 years of experience in the water industry including operation and maintenance of water treatment facilities and water pumping stations. He holds a MA 4T Operator and BackFlow Inspector certifications.

Professional Experience

Project Manager / Technical Support, Hyannis Water System
(Nov 2009 – present)
SUEZ North America; Hyannis, MA

- Full time oversight of the operation and maintennace of water treatment and distribution system including four ground water treatment facilities, two booster stations, 12 wells and over 100 miles of distribution main until semi-retirement in 2017.
- Currently providing part time technical support to the Hyannis project for a variety of operations & maintenance tasks.
- Responsible for budgeting, daily/long term planning, safety, scheduling and carrying out of state and federal reporting.
- Responsible for compliance with all Environmental Health and Safety rules and regulations.
- Responsible for water quality compliance with all local, state and federal rules and regulations.

EDUCATION
AS, Law Enforcement, Bristol Community College, 1975

CERTIFICATIONS & PROFESSIONAL AFFILIATIONS

Drinking Water Plant Certified Operator, Massachusetts, #7518, T-4, 2000
Backflow Inspector Certification Massachusetts
Drinking Water Plant Certified Operator, Rhode Island, #R4655T, T-4, 2002
New England Water Works Association

Plant Manager (Jan 2001 – Nov 2009)
AECOM / EARTH TECH / City of Pawtucket, RI

- Responsible for operations and maintenance of a 25-MGD WTP using Roberts Pacer II technology for coagulation, flocculation, upflow clarification, and deep bed filtration processes.
- 25-MGD pump station at Branch Street, three storage tanks: 3, 5 and 10 million gallons capacities, new interconnect piping, intake structure and new raw water pump station, 54-inch main rehabilitation, 36-inch parallel pipeline, and new watershed monitoring system.
- Responsible for budgeting, daily/long term planning, safety, scheduling and carrying out of state and federal reporting.
- Responsible for compliance with all Environmental Health and Safety rules and regulations.
- Responsible for water quality compliance with all local, state and federal rules and regulations.
- Responsible for management and supervision of 13 on-site personnel including 9 union employees represented by a CBA.
- Oversight of Rhode Department of Health certified laboratory at the Pawtucket project.

Jeffrey Priest | ASSISTANT PROJECT MANAGER

PROFESSIONAL PROFILE

Mr. Priest is currently Assistant Project Manager for SUEZ' operation of the City of Gardner's water and wastewater systems. He has over 13 years of experience in the water/wastewater industry including operation and maintenance of water treatment facilities, water booster stations, sewer pump stations, water distribution maintenance, sewer collection maintenance, meter reading, and customer service and oversight of all backflow device testing throughout the City.

EDUCATION
A.S., Business Administration, Mount Wachusett Community College; Gardner, MA

CERTIFICATIONS & PROFESSIONAL AFFILIATIONS
MA Grade 3D Full Water Distribution

MA Grade 2T Full Drinking Water

MA Cross Connection Certification, Backflow Preventer Tester

MA Class 2A Hoisting Engineer License

MA Class B CDL

Professional Experience

Assistant Project Manager / Collection & Distribution Supervisor (2008 – present)
SUEZ North America; Gardner, MA

- Serves as the Collection & Distribution Supervisor for The City of Gardner's water/sewer departments which includes 2 water treatment facilities, 3 water storage tanks, 2 water booster stations, and 10 sewer pump stations.
  - Performs daily operations and maintenance of water distribution system consisting of 90+ miles of water lines, 900+ hydrants, 5600+ service connections, 2000+ valves, 3 water storage tanks, and 2 water booster stations.
  - Performs daily operations and maintenance of water treatment system consisting of 2 water treatment facilities and 3 reservoirs including watershed management
  - Responsible for coordination and implementation of testing for over 250 backflow devices
  - Performs regulatory required drinking water sampling to satisfy Gardner's DEP Sampling Plan
  - Performs daily operations and maintenance of sewer collection system consisting of 90+ miles of sewer lines, 5400+ sewer connections, 2000+ sewer manholes, and 10 sewer pump stations
  - Supervises staff of 8 technicians and instructs them on day to day jobs and projects
  - Coordinated Safe Work Plans and SOP's for tasks performed by both himself and his staff

Secondary Operator, Winchendon Water & Sewer (2007 – 2008)
Earth Tech; Winchendon, MA

- Served as secondary operator for the Winchendon water/sewer departments which includes 2 water storage tanks, 3 water booster stations, and 2 sewer pump stations. (10/2008-3/2013)
  - Perform daily operations and maintenance of water distribution system consisting of 70+ miles of water lines, 500+ hydrants, 2100+ service connections, 2 water storage tanks, and 3 water booster stations.
  - Perform meter reading on a biannual basis as well as the maintenance and replacement of water meters and all other related plumbing
  - Perform regulatory required drinking water sampling to satisfy Winchendon's DEP Sampling Plan
  - Perform daily operations and maintenance of sewer collection system consisting of 25+ miles of sewer lines, 1250+ sewer connections, 600+ sewer manholes, and 2 sewer pump stations
  - Main field tech for the town-wide water meter replacement/upgrade program including meter replacements and radio installations

ATTACHMENT B

CAPITAL IMPROVEMENTS PLAN (By Aquarion, for 2017 – 2021)

Aquarion Water Company of Massachusetts, Inc.- Five-Year Capital Budget

	2017	2018	2019	2020	2021	5-Year Total
Mains	$1,347,705	$1,351,645	$1,952,397	$1,590,000	$990,000	**$7,231,747**
Dams	$10,000	$15,000				**$25,000**
Transmission & Distribution	$1,067,059	$380,000	$275,000	$535,000	$1,260,000	**$3,517,059**
IT	$20,000	$5,000	$5,000	$5,000	$5,000	**$40,000**
Meters	$240,000	$240,000	$230,000	$230,000	$230,000	**$1,170,000**
Source of Supply	$95,000	$250,000	$195,000	$370,000	$920,000	**$1,830,000**
Treatment	$755,000	$620,000	$325,000	$215,000	$215,000	**$2,130,000**
Pumping	$206,000	$255,000	$110,000	$85,000	$85,000	**$741,000**
General Plant	$128,000	$33,000	$33,000	$33,000	$33,000	**$260,000**
Total Capex	**$3,868,764**	**$3,149,645**	**$3,125,397**	**$3,063,000**	**$3,738,000**	**$16,944,806**

DESCRIPTION	CATEGORY	SYSTEM	2017	2018	2019	2020	2021	Total
Tower Road, Hingham	Main	Hingham/Hull	$375,705					**$375,705**
Beach Ave, Hull	Main	Hingham/Hull		$20,000	$950,000			**$970,000**
Bleeders, Hull	Main	Hingham/Hull	$20,000	$876,645				**$896,645**
Annual Water Main Replacement (Hing)	Main	Hingham/Hull			$0	$550,000	$550,000	**$1,100,000**
Capitalized Main Breaks/Paving	Main	Hingham/Hull	$40,000	$40,000	$40,000	$40,000	$40,000	**$200,000**
Philips Dr. & Woodland St	Main	Millbury		$12,000	$502,332			**$514,332**
Annual Water Main Replacement (Mil)	Main	Millbury				$400,000	$400,000	**$800,000**
Main Street - Phase 3, Oxford	Main	Oxford			$460,065	$450,000		**$910,065**
Leicester Street - Bridge Replacement	Main	Oxford				$150,000		**$150,000**
Rawson Avenue, Oxford	Main	Oxford	$12,000	$403,000				**$415,000**
Charlton Street	Main	Oxford	$900,000					**$900,000**
			$1,347,705	**$1,351,645**	**$1,952,397**	**$1,590,000**	**$990,000**	$7,231,747
Howe Pond Dam	Dam	Millbury	$10,000	$15,000				**$25,000**
			$10,000	**$15,000**				**$25,000**
Services Recurring (new & replacement)	T&D	MA	$155,000	$150,000	$150,000	$150,000	$150,000	**$755,000**
Hydrants Replacement	T&D	MA	$40,000	$40,000	$40,000	$40,000	$40,000	**$200,000**
T&D Recurring	T&D	MA	$70,000	$70,000	$70,000	$70,000	$70,000	**$350,000**
New Tank (Hull)	T&D	Hingham/Hull				$50,000	$1,000,000	**$1,050,000**
New Pressure Zone (Hull)	T&D	Hingham/Hull			$15,000	$225,000		**$240,000**
Accord Tank (Hingham) Rehab.	T&D	Hingham/Hull	$125,000					**$125,000**
Turkey Hill Tank Rehab	T&D	Hingham/Hull		$100,000				**$100,000**
Burbank Avenue Tank Rehabilitation	T&D	Millbury	$677,059					**$677,059**
Distribution Analysis	T&D	Oxford		$20,000				**$20,000**
			$1,067,059	**$380,000**	**$275,000**	**$535,000**	**$1,260,000**	$3,517,059
SCADA Workstations (Millbury)	IT	Millbury	$15,000					**$15,000**
IT Misc	IT	MA	$5,000	$5,000	$5,000	$5,000	$5,000	**$25,000**
			$20,000	**$5,000**	**$5,000**	**$5,000**	**$5,000**	**$40,000**
Meters (new and replacement)	Meters	MA	$240,000	$240,000	$230,000	$230,000	$230,000	**$1,170,000**
			$240,000	**$240,000**	**$230,000**	**$230,000**	**$230,000**	$1,170,000
New Source Development	SOS	Hingham/Hull	$25,000	$50,000	$100,000	$225,000	$650,000	**$1,050,000**
Demand Management	SOS	Hingham/Hull	$20,000	$20,000	$20,000	$20,000	$20,000	**$100,000**
New Source Development	SOS	Millbury	$50,000	$180,000	$75,000	$125,000	$250,000	**$680,000**
			$95,000	**$250,000**	**$195,000**	**$370,000**	**$920,000**	$1,830,000
Treatment Recurring (Hing WTP)	Treatment	Hingham/Hull	$175,000	$175,000	$175,000	$175,000	$175,000	**$875,000**
Filter Valve Replacements (HHWTP)	Treatment	Hingham/Hull	$15,000	$10,000	$10,000			**$35,000**
Accord Intake Screen Replacement	Treatment	Hingham/Hull		$275,000				**$275,000**
High Service - VFD	Treatment	Hingham/Hull	$50,000					**$50,000**
Main Service - VFD	Treatment	Hingham/Hull	$75,000	$75,000				**$150,000**
Hingham Centrifuge Conveyor	Treatment	Hingham/Hull	$250,000					**$250,000**
SCADA Phase 4 (Automate HHWTP)	Treatment	Hingham/Hull	$40,000					**$40,000**
Capital Improvement Plan (HHWTP)	Treatment	MA	$15,000					**$15,000**
Security Improvements	Treatment	MA		$20,000				**$20,000**
SCADA Equipt Replace & Program	Treatment	MA	$10,000	$10,000	$10,000	$10,000	$10,000	**$50,000**
Treatment Recurring	Treatment	Millbury	$15,000	$15,000	$15,000	$15,000	$15,000	**$75,000**
Instrumentation Impr (Millbury Ave WTP)	Treatment	Millbury	$25,000	$25,000	$25,000			**$75,000**
SCADA Upgrade (Millbury)	Treatment	Millbury	$50,000					**$50,000**
Treatment Recurring	Treatment	Oxford	$15,000	$15,000	$15,000	$15,000	$15,000	**$75,000**
Nelson Street Well Improvements	Treatment	Oxford			$75,000			**$75,000**
SCADA Phase 1 (Oxford)	Treatment	Oxford	$20,000					**$20,000**
			$755,000	**$620,000**	**$325,000**	**$215,000**	**$215,000**	$2,130,000
New Pump - Free St Well #2	Pumping	Hingham/Hull	$0	$60,000				**$60,000**
Fulling Mill Cistern - Vertical Turbine	Pumping	Hingham/Hull	$125,000					**$125,000**
Pumping Recurring	Pumping	MA	$75,000	$85,000	$85,000	$85,000	$85,000	**$415,000**
New Generator (Oak Pond Well)	Pumping	Millbury		$70,000				**$70,000**
New Flow Meter (#2 N. Main St)	Pumping	Oxford	$6,000					**$6,000**
Pump Replacement (#3 Nelson Well)	Pumping	Oxford			$25,000			**$25,000**
New Roof (#3 Nelson Well)	Pumping	Oxford		$40,000				**$40,000**
			$206,000	**$255,000**	**$110,000**	**$85,000**	**$85,000**	$741,000
General Plant Recurring	A&G	MA	$25,000	$25,000	$25,000	$25,000	$25,000	**$125,000**
Vehicle Replacements	A&G	MA	$95,000					**$95,000**
Tools	A&G	MA	$8,000	$8,000	$8,000	$8,000	$8,000	**$40,000**
			$128,000	**$33,000**	**$33,000**	**$33,000**	**$33,000**	$260,000
TOTAL:			**$3,868,764**	**$3,149,645**	**$3,125,397**	**$3,063,000**	**$3,738,000**	**$16,944,806**

ATTACHMENT C

RATES AND FEES FOR WEIR RIVER WATER SYSTEM FROM RULES AND REGULATIONS (PENDING)

Item 3.B.1. Rate Sheet for Water Usage and Fees (from the pending Rules and Regulations for the Weir River Water System.

WATER CHARGE

A water charge will be made for all water used as registered by the meter, as set forth below:

Rate Per Hundred Cubic Feet (CCF)

RATE R1 - Applies to all metered residential usage by customers classified as such on the Town's records.

First 12 CCF per Quarter/ 4 CCF per Month	$3.613
Over 12 CCF per Quarter/ 4 CCF per Month	$4.588

RATE G1 - Applies to all metered commercial usage by customers classified as such on the Town's records, which do not qualify for Rate G4.

First 12 CCF per Quarter/ 4 CCF per Month	$2.668
Over 12 CCF per Quarter/ 4 CCF per Month	$3.230

RATE G2 - Applies to all metered public authority usage by customers classified as such on the Town's records, which do not qualify for Rate G4.

First 12 CCF per Quarter / 4 CCF per Month	$2.653
Over 12 CCF per Quarter/ 4 CCF per Month	$2.959

RATE G3 - Applies to all metered industrial usage by customers classified as such on the Town's records, which do not qualify for Rate G4.

All Usage	$2.953

RATE G4 - Applies to the total monthly usage by qualifying non-residential customers, classified as such on the Town's records, as per the following criteria:
Monthly billed amounts no less than 10,000,000 gallons and no more than 40,000,000 gallons. Past 12 months total billed amount no less than 120,000,000 gallons.

All Usage	$2.009

SERVICE CHARGE

In addition, all metered general water service customers shall pay a service charge on the size of each meter installed. Customers with multiple meters shall be charged for each meter at the indicated rate.

Size of Meter	Per Month	Per Quarter
5/8"	$ 16.08	$ 48.24
3/4"	$ 24.05	$ 72.15
1"	$ 40.12	$ 120.36
1 1/2"	$ 80.32	$ 240.96
2"	$ 128.55	$ 385.65
3"	$ 241.10	$ 723.30
4"	$ 401.88	$ 1,205.64
6"	$ 803.82	$ 2,411.46
8"	$ 1,286.16	$ 3,858.48

RATES FOR PRIVATE FIRE PROTECTION

AVAILABILITY

This rate is available to customers located on the mains of the water system within the Towns of Hingham, Hull and Cohasset for Private Fire Protection, subject to the Rules and Regulations of the Town.

	Per Year
For each service connection 1”	$ 122.17
For each service connection 1.25”	$ 137.54
For each service connection 1.5”	$ 154.84
For each service connection 2”	$ 206.69
For each service connection 2.5”	$ 272.00
For each service connection 3”	$ 352.67
For each service connection 4” or smaller	$ 552.44
For each service connection 6”	$ 1,105.64
For each service connection 8”	$ 1,873.97
For each service connection 10”	$ 2,949.64
For each service connection 12”	$ 4,178.96
For each privately owned fire hydrant serving Cohasset, Hingham, and Hull	$ 913.37
For each privately owned fire hydrant outside Cohasset, Hingham, and Hull	$ 1,150.13

RATE FOR PUBLIC FIRE PROTECTION

For each Town owned public fire hydrant $ 193.51

In addition, annual charges as follows:

Town of Hingham	$ 395,054.00
Town of Hull	$ 227,331.00
Town of Cohasset	$ 18,712.00

MISCELLANEOUS CHARGES

Drought Conditions

Termination and Restoration Fee – Business Hours* $ 65.00 Termination

and Restoration Fee – After Hours $ 92.00

*Normal business hours are Monday through Friday, 8 am to 4 pm.

System Development Charge (“SDC”)

Meter Size**	Capacity GPM	Ratio to 5/8” Meter	Fee
5/8”	20	1.00	$640
3/4"	30	1.50	$960
1”	50	2.50	$1,600
1 ½”	100	5.00	$3,200
2”	160	8.00	$5,120
3”	320	16.00	$10,240
4”	500	25.00	$16,000

**SDC is determined on a case by case basis for meter sizes greater than 4”.

OTHER SERVICES

AVAILABILITY

This rate is available to all classes of customers located on the mains of the water system. Subject to the Rules and Regulations of the Town Water System.

Frozen Meters	Actual Cost of Meter
Meter Test Fees 1" and less	$ 50.00
Larger than 1"	$ 75.00
Return Check Fee	$ 20.00
Seasonal Meter Set & Turn On Fee	$ 65.00
Seasonal Meter Removal Fee & Turn Off Fee	$ 65.00
Turn On Fee – Business Hours	$ 65.00
After Hours Callout	$ 392.00
Water Conservation Fines	$ XXX.XX
Abatement Fee	$ XXX.XX
Non-Payment Reconnect – Business hours	$ 65.00
Non-Payment Reconnect – After Hours	$ 392.00
Theft of Service	$ 1,000.00
(or triple the amount of damages, whichever is greater)	
Cross Connection – One Device Testing	$ 75.00
Each Additional Device	$ 35.00

TERMS OF PAYMENT

The Town Water System may render bills on either a quarterly or monthly basis. The above rates are payable within thirty (30) days of the date on the bill.

SURCHARGES

The following surcharges are applicable to all metered customers located on the mains of the Town's water system in Hingham, Hull and Cohasset.

SURCHARGE

	Service Charge	
Size of Meter	Per Month	Per Quarter
5/8"	$10.32	$30.96
3/4"	$15.70	$47.10
1"	$25.20	$75.60
1 1/2"	$49.20	$147.60
2"	$78.00	$234.00
3"	$145.00	$435.00
4"	$240.30	$720.90
6"	$479.60	$1,438.80
8"	$766.90	$2,300.70

Consumption Charge per 100 cubic feet for Water Treatment Facility Lease:	$0.9524
Consumption Charge per 100 cubic feet for Water Treatment Operation and Maintenance	$1.0639

ATTACHMENT D

FY 2021 ENTERPRISE FUND BUDGET

FY21 Weir River Water System Budget

	2019 Town Meeting	FY21	FY21 vs. 2019 Town Meeting
Revenue	$13,047,168	$10,597,979	-$2,449,189
Salaries	$240,120	$246,725	-$6,605
Operating Expenses	$4,420,000	$5,638,990	-$1,218,990
PILOT	$830,503	$840,959	-$10,456
Debt Service	$2,688,662	$1,539,000	$1,149,662
Subtotal Expenses	$8,179,285	$8,265,673	-$86,388
Revenue/Budgeted Surplus	$4,867,883	$2,332,306	-$2,535,577
Grand Total	$13,047,168	$10,597,979	-$2,449,189

Assumptions:

- No change in water rates (BOS voted to maintain rates on 2/27)
- Consumption based on data provided by Aquarion (10/18 - 9/19)
- Town assumes operational responsibility 7/1/20
- Quarterly billing
- Revenue estimate lower than 2019 due to timing of billing and collections
    - Quarterly Billing on last day of month - for services through the end of that month
    - Collection rate: 80% within 30 days, 10% within 60 days, 10% within 90 days

FY21 Weir River Water System Detailed Budget

		2019 Town Meeting	FY21	FY21 B/(W) 2019 Town Meeting
	Revenue	**$13,047,168**	**$10,597,979**	**-$2,449,189**
	Salaries			
	Water Superintendent	$200,100	$136,705	
	Administrative support	$40,020	$40,020	
	GIS	$0	$20,000	
	Seasonal construction inspector(s) FY21	$0	$50,000	
*	**Subtotal Salaries**	**$240,120**	**$246,725**	**-$6,605**
	Operating Expenses			
	Operator contract including billing	$3,780,000	$4,741,066	-$961,066
	Operator transition costs	$165,000	$334,906	-$169,906
	Benefits (30% per Town Accountant)	$0	$53,018	-$53,018
	Cash capital and emergency repairs	$0	$250,000	-$250,000
	Property Insurance	$0	$75,000	-$75,000
	Engineering fees, Cost of Service study, Capital study	$0	$150,000	-$150,000
	Misc - DEP fee, outreach, office equipment, professional development, supplies	$325,000	$35,000	$290,000
	Subtotal Additional Muni Costs	$4,270,000	$5,638,990	-$1,368,990
	Other Transaction costs	$150,000	$0	$150,000
*	**Subtotal Operating Expenses**	**$4,420,000**	**$5,638,990**	**-$1,218,990**
	Property Taxes to Town of Hingham	$692,273	$699,273	
	Property Taxes to Cohasset and Hull	$138,230	$141,686	
*	**Payment in Lieu of Taxes**	**$830,503**	**$840,959**	**-$10,456**
	Debt Service			
	Water system acquisition	$2,688,662	$1,539,000	$1,149,662
	Capital improvements	$0	$0	$0
*	**Subtotal Debt Service**	**$2,688,662**	**$1,539,000**	**$1,149,662**
*	**Subtotal Expenses**	**$8,179,285**	**$8,265,673**	**-$86,388**
*	**Revenue/Budgeted Surplus**	**$4,867,883**	**$2,332,306**	**-$2,535,577**
*	**Grand Total**	**$13,047,168**	**$10,597,979**	**-$2,449,189**

ATTACHMENT E

Water Management Act Registration Statement

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 508-946-2700

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

July 3, 2008

Robert Roland
Aquarion Water Company
900 Main Street
Hingham, MA 02043

RE: HINGHAM/HULL – BRP/WMA
WMA Registration #41913101

Dear Mr. Roland:

Please find the attached documents:

- A description of the Massachusetts Water Management Act Registration Statement Contents and Conditions for 2008-2017; and
- The modified 2008-2017 Water Management Act Registration #41913101 for Aquarion Water Company. This Registration has been modified to note the installation of the satellite wells Scotland Street Well 1A (Source Code 4131000-10G), Fulling Mill Well 1 (Source Code 4131000-11G) and Fulling Mill Well 2 (Source Code 4131000-12G).

The signature on this cover letter indicates formal issuance of the attached document.

If you have any questions regarding this information, please contact Leslie O'Shea at (508) 946-2837 or via e-mail at leslie.o'shea@state.ma.us.

Very truly yours,

Richard J. Rondeau, Chief
Drinking Water Program
Bureau of Resource Protection

Enclosures

Y:\DWP Archive\SERO\HINGHAM-WMA-Registration #41913101-2008-07-03

ecc: Duane LeVangie, MassDEP

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
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Massachusetts Water Management Act Registration Statement
Content and Conditions for 2008-2017

The enclosed renewed Water Management Act Registration Statement authorizes continued withdrawals from January 1, 2008 through December 31, 2017. This Registration Statement reflects your documented water withdrawals from January 1, 1981 through December 31, 1985, and the source locations from which this water was withdrawn. While the initial Water Management Registration Statements had to be filed with the Massachusetts Department of Environmental Protection (the Department) by January 1, 1988, existing registrants have the opportunity to renew the Statements every ten years thereafter. Earlier this year you requested that your Registration be renewed, and the attached Registration Statement confirms your authorized registered withdrawal volumes and sources.

As noted in the Department's August 2007 Registration Renewal Request, the Department has evaluated including water conservation measures in registrations that are consistent with the State Water Conservation Standards approved by the Water Resources Commission (WRC) in July 2006. To better achieve a balance between competing water withdrawals and uses mandated by the Act, to protect the natural environment, and to provide continued and sustainable economic growth in the Commonwealth, the Department is including water conservation measures in Public Water Supply (PWS) Registration Statements pursuant to M.G.L. c. 21G, §§(5) and (6), that include:

- a requirement that PWSs meet the WRC's performance standards of 65 residential gallons per capita day water use (RGPCD) and 10% unaccounted for water loss (UAW) by December 31, 2017;
- a requirement that those not meeting specific performance milestones must develop and implement compliance plan(s) in advance of December 31, 2017;
- a prohibition on the use of decreasing block rates in establishing service charges (M.G.L. c.40, § 39L);
- a requirement that PWSs begin implementing by May 1, 2009 a Seasonal Demand Management Plan that, at a minimum, restricts nonessential outdoor water use between May 1st and September 30th when the Massachusetts Drought Management Task Force declares a drought level of "Advisory", "Watch", "Warning" or "Emergency" for the region in which the PWSs withdrawals are located. Restrictions on outdoor water use shall remain in force until the drought level is declared to be "Normal" by the Drought Management Task Force.
    - PWS with surface water sources who have a Department-approved Drought Management Plan that includes restrictions based on system storage, operational concerns and environmental considerations, may implement restrictions consistent with their plan rather than restrictions triggered by the Drought Management Task Force declaration.

RGPCD and UAW Performance Standards

The Registration Statements include steps that PWSs will need to take if they are having difficulty meeting the performance standards. The Registration Statement outlines a timetable for PWSs to develop and implement their own plans for bringing their system into compliance with the performance standards. Alternatively, a PWS can implement the MassDEP Model Conservation Plans for RGPCD or UAW at any time and then be considered to have met the functional equivalent of the performance standards.

The MassDEP Model Conservation Plans have not been completed at this time. The Department is committed to working with interested stakeholders, particularly the Massachusetts Water Works Association, to develop model conservation plans that provide a menu of best management practices for registrants to refer to and to use as they develop their own compliance plans. We anticipate developing a water management toolbox over the next several months that will meet the needs of suppliers and meet the Department's commitment to protect water resources while we balance human and environmental needs.

The Department plans to engage interested parties in discussions on rate structures, the experiences of water suppliers and other utilities incorporating rates into their conservation programs, and the impact of conservation on revenues. The Department anticipates incorporating the findings of our discussions into the water management toolbox. We look forward to your input on these matters.

Seasonal Demand Management

PWSs will be required to develop a Seasonal Demand Management Plan to reduce nonessential outdoor water use from May 1st to September 30th. The Department will be working in the coming months with the Massachusetts Water Works Association and the Water Management Advisory Committee to develop an outline of the minimum elements that will be required in a Seasonal Demand Management Plan. The Department will forward the Seasonal Demand Management Plan outline to registrants by May 1, 2008. Registrants will be required to forward a draft of their proposed Seasonal Demand Management Plan to the Department for its review and approval by August 1, 2008. The Department anticipates that many PWSs will already have developed and implemented seasonal water use restrictions that meet the minimum requirements in this Registration Statement. Suppliers can always implement stricter restrictions than those required by the Department. For more information on the Massachusetts Drought Task Force and drought declarations, please see:
http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm

In addition, the Department has included more information that was submitted by Registrants in 1988 and updated the documents to include changes that have occurred since 1988, including:

- A detailed list of ground and surface water sources, including the PWS source ID, for all registered withdrawal points. The Department has added this information to reflect the withdrawal points registered in 1988; and
- Replacement wells and/or satellite wells, if applicable.

Finally, the Department has included the following administrative language:

- Enforcement language that reserves the Department's rights in any case where there is an ongoing proceeding, or may be a future proceeding; and
- Appeal language that explains how the registrant can seek review of the Registration Conditions in the Renewal Registration Statement in an adjudicatory proceeding.

Many registered PWSs also hold Water Management Act permits. If the Registrant holds a Water Management Act permit, then the conditions in the permit, including all applicable deadlines, shall supersede the corresponding conditions in this Registration Statement.

COMMONWEALTH OF MASSACHUSETTS
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RENEWAL REGISTRATION STATEMENT FOR VERIFIED WATER WITHDRAWAL

The Massachusetts Department of Environmental Protection ("the Department") hereby accepts the Registration Renewal Request filed by the following Registrant pursuant to 310 CMR 36.10 for the water withdrawal described below. The Registrant is hereby authorized to withdraw up to the registered volume of water from the registered withdrawal point(s) until the expiration date, as set forth below, in compliance with M.G.L. c. 21G and 310 CMR 36.00, subject to the Registration Conditions set forth below.

GENERAL INFORMATION

Registration Number: **41913101** River Basin: BOSTON HARBOR

Registrant: AQUARION WATER COMPANY
900 MAIN ST
HINGHAM, MA 02043

Number of registered withdrawal points: 12
Groundwater: 9 Surface water: 3

SourceID	Type	Source Name
4131000-02G	GW	FREE STREET WELL #2
4131000-03G	GW	SCOTLAND STREET WELL 1
4131000-04G	GW	DOWNING STREET WELL
4131000-05G	GW	FREE STREET WELL #3/#5
4131000-06G	GW	PROSPECT STREET WELL
4131000-09G	GW	FREE STREET #2A
4131000-10G	GW	SCOTLAND STREET WELL 1A
4131000-11G	GW	FULLING MILL WELL 1
4131000-12G	GW	FULLING MILL WELL 2
4131000-01S	SW	ACCORD POND
4131000-02S	SW	ACCORD BROOK
4131000-03S	SW	FULLING MILL BASINS

Use: Public Water Supply Days of Operation: 365

Average Volume per Day (MGD): 3.51 Total Annual Volume (MGY): 1281.15

Effective Date: January 1, 2008 Expiration Date: December 31, 2017

REGISTRATION CONDITIONS

The Registrant shall comply at all times with M.G.L. c. 21G, 310 CMR 36.00 and all other applicable state and federal statutes and regulations.[1] In addition, the Registrant shall comply with the following conditions, provided, however, that if the Registrant holds a currently valid Water Management Act permit, then the conditions in the permit, including all applicable deadlines, shall supersede the corresponding conditions in this Renewal Registration Statement.

Metering:
The Registrant shall install and maintain source meter(s) for each withdrawal point(s).
The Registrant shall calibrate all source meter(s) annually.

Records:
The Registrant shall maintain withdrawal records in sufficient detail to timely provide the information necessary to accurately complete each Annual Statistical Report (ASR) it files with the Department.

Performance Standards for Residential Water Use and Unaccounted-for Water:
The Registrant shall comply with the 65 Residential Gallons per Capita Day (RGPCD) and 10 % Unaccounted-for Water (UAW) performance standards included in the Massachusetts Water Resources Commission's State Water Conservation Standards (July 2006) as soon as feasible but no later than **December 31, 2017**. The Registrant shall annually document its actual RGPCD and UAW in the ASRs it files with the Department, commencing with its ASR for calendar year 2008. The Registrant's ASRs shall document that it is making demonstrable progress towards meeting the performance standards for RGPCD and UAW. Commencing with its ASR for calendar year 2017, and for each year thereafter, the Registrant shall document that it is in full compliance with the performance standards for both RGPCD and UAW.

If the Registrant's ASR for calendar year 2009 indicates that the Registrant is exceeding 80 RGPCD and/or 15% UAW, then the Registrant shall develop and implement an annual compliance plan(s) designed to meet the 65 RGPCD and 10% UAW performance standards by December 31, 2017. The Department will make the MassDEP Model Conservation Plan(s), including a menu of best management practices (BMPs), available to the Registrant for adoption or consideration in developing its own compliance plan(s). The Registrant shall submit a copy of its first compliance plan(s) to the Department by December 31, 2010, and begin implementation upon submittal.

If the Registrant's ASR for calendar year 2012 indicates that the Registrant is exceeding 65 RGPCD or 10% UAW, then the Registrant shall develop and implement an annual compliance plan(s) designed to meet the 65 RGPCD and 10% UAW performance standards by December 31, 2017, unless it has done so already. The Registrant shall submit a copy of its first compliance plan(s) to the Department by December 31, 2013, and begin implementation upon submittal.

The Department reserves the right to commence enforcement against the Registrant if it is not making demonstrable progress towards meeting these performance standards, or if it has not developed and implemented an annual compliance plan(s) that is reasonably designed to meet the 65 RGPCD and 10% UAW performance standards by December 31, 2017. In exercising its enforcement discretion, the Department will consider the Registrant's past efforts to come into compliance with these requirements.

[1] Regulations may change from time-to-time. The Registrant is responsible for complying with the most current version of the applicable regulations, unless the regulations expressly provide otherwise.

Note: Those registrants with RGPCD above 65 or UAW above 10% may choose to adopt the MassDEP Model Conservation Plan(s) at any time before December 31, 2017. Those registrants that have adopted the MassDEP Model Conservation Plan(s), and have made appropriate arrangements to finance, implement and enforce its provisions, will not be subject to enforcement for exceeding the 65 RGPCD and 10% UAW performance standards provided that they are continuing to make reasonable efforts to implement and enforce their compliance plan(s). Those registrants that have not adopted the MassDEP Model Conservation Plan(s) prior to December 31, 2017, and/or that are not making reasonable efforts to finance, implement and enforce their compliance plan(s) provisions, may be subject to enforcement for exceeding the 65 RGPCD and/or 10% UAW performance standards and may be required to adopt the MassDEP Model Conservation Plan(s), if they have already not done so.

Seasonal Demand Management – May 1 through September 30:

The Registrant shall submit a Seasonal Demand Management Plan by August 1, 2008 for the Department's review and approval. The Plan must begin by May 1, 2009, and restrict at a minimum nonessential outdoor water use from May 1st through September 30th, consistent with the following:

If the Registrant's RGPCD is 65 or less on the ASR for the previous year, then the Registrant shall, at a minimum, restrict outdoor water use according to its Department-approved Seasonal Demand Management Plan when the Massachusetts Drought Management Task Force declares a Drought Advisory, Drought Watch, Drought Warning or Drought Emergency for the region where the Registrant's withdrawals are located. Restrictions on outdoor water use shall remain in place until the drought level is returned to "Normal."

-or-

If the Registrant's RGPCD is 66 or greater on the ASR for the previous year, then the Registrant shall, at a minimum, restrict nonessential outdoor water use to one day per week outside the hours of 9:00 a.m. to 5:00 p.m. when the Massachusetts Drought Management Task Force declares a Drought Advisory, Drought Watch, Drought Warning or Drought Emergency for the region where the Registrant's withdrawals are located. The restrictions on nonessential outdoor water use shall remain in place until the drought level is returned to "Normal."

-or-

If the Registrant withdraws from surface water supplies and has a Department-approved Drought Management Plan that includes restrictions based on system storage, operational concerns and/or environmental considerations, then the Registrant shall implement outdoor water use restrictions in accordance with its Drought Management Plan.

Nonessential Water Use: As used herein, "nonessential outdoor water use" means uses that are not required: (a) for health or safety reasons; (b) by regulation; (c) for the production of food and fiber; (d) for the maintenance of livestock; or (e) to meet the core functions of a business.

Examples of nonessential outdoor water uses include: the irrigation of lawns or landscaping, except by means of a hand-held hose outside the hours of 9:00 a.m. to 5:00 p.m.; washing vehicles other than by means of a commercial car wash or except as necessary for operator safety; and washing of exterior building surfaces, parking lots, driveways and/or sidewalks, except as necessary to apply paint, preservatives, stucco, pavement, cement, or the like.

Examples of acceptable outdoor water uses outside the hours of 9:00 a.m. to 5:00 p.m. include: irrigation to establish a new lawn during the months of May and September; irrigation for the production of food and fiber or the maintenance of livestock; irrigation by plant nurseries as necessary to maintain stock; irrigation by golf courses as necessary to maintain greens and tees, and limited fairway watering; and irrigation of public parks and recreational fields.

Nothing in this Registration Statement shall be construed to prohibit or prevent the Registrant from implementing any water use restrictions stricter than those contained herein.

Note: 310 CMR 22.15(8) requires that all public water systems establishing mandatory restrictions on water use notify the Department in writing within 14 days of the effective date of such restrictions. Notice must include a description of the regulations, bylaws or ordinances imposing the restriction. Registrants may also be required to document implementation and enforcement of the restrictions in their ASRs.

For the most up-to-date information on the drought status in your region, the Registrant should monitor the Department's website at www.mass.gov/dep and MassDCR's website at http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm.

SERVICE CHARGES

The Registrant shall not charge for water services on a descending unit rate basis (i.e. decreasing block rates). Descending unit rate basis that charge lower unit prices as water use increases during the billing period are prohibited by M.G.L. c. 40, § 39L.

REPORTING

The Registrant shall file an annual statement of withdrawal, as required by 310 CMR 36.11, for each year that this registration is in force, on forms provided and by the deadline specified by the Department. At the request of the Department, the Registrant may be required to report withdrawal volumes monthly or daily in accordance with 310 CMR 36.08.

EFFECT ON ANY PENDING AND FUTURE ACTIONS

The withdrawal registration program is intended to provide a procedure and deadline for persons making existing withdrawals above the threshold quantity to file a registration statement with the Department for their existing withdrawals to enable the Department to document baseline water use to manage the surface and groundwater of the Commonwealth. Except as expressly provided herein, this Renewal Registration Statement shall not be construed or operate as barring, diminishing, adjudicating or in any way affecting any legal or equitable right of the Department with respect to any pending administrative or judicial action, or any such future action, including without limitation any pending enforcement action or permit appeal, or any legal or equitable right of the Department to pursue any claim, action, suit, cause of action, or demand that the Department may have with respect to any matter covered by this Renewal Registration Statement.

REGISTRATION RENEWAL

This Registration Statement expires on January 1, 2018, unless the Registrant files a registration renewal request with the Department prior to that date in accordance with 310 CMR 36.10. Failure to file a registration renewal request by the expiration date shall result in the loss of the Registrant's right to withdraw the water volumes authorized by this Renewal Registration Statement until a permit for such withdrawal has been obtained from the Department.

REGISTRATION TRANSFER

The transfer of Registration Statements is governed by 310 CMR 36.09. Except as provided in 310 CMR 36.09(2), this Renewal Registration Statement may be transferred, in whole or in part, by the Registrant to another person if (1) the Department is notified of the proposed transfer at least 30 days in advance of the proposed transfer date, (2) the notice includes a written agreement between the parties to the transfer, (3) the notice provides the date that the proposed transfer is to take place, and (4) the notice describes the registration to be transferred. A transfer request must be accompanied by the applicable fee established in 310 CMR 4.00. This Renewal Registration Statement shall be surrendered to the Department upon transfer of any withdrawal authorized by this document.

APPEALS

The Registrant may request an adjudicatory hearing on this Renewal Registration Statement by timely filing a Notice of Claim for an Adjudicatory Appeal ("Notice of Claim") in accordance with M.G.L. c. 30A, § 10 and 310 C.M.R. 1.00 within twenty-one (21) days of its receipt of this Renewal Registration Statement. The Notice of Claim shall state specifically, clearly and concisely the facts that are grounds for the appeal, the relief sought, and any additional information required by applicable law or regulation. A copy of this Renewal Registration Statement shall be included with a Notice of Claim. The Notice of Claim and supporting documentation must be sent to:

Case Administrator
Office of Appeals and Dispute Resolution
Department of Environmental Protection
One Winter Street, Second Floor
Boston, MA 02108

In addition, a valid check made payable to the Commonwealth of Massachusetts in the amount of $100 for the appeal filing fee, if required, must be mailed to:

Commonwealth of Massachusetts Lock Box
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The Notice of Claim may be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

July 3, 2008
Date

Richard J. Rondeau, Chief
Drinking Water Program
Bureau of Resource Protection

MassDEP
Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

JUL 12 2017

July 06, 2017

Stephen Olson
Aquarion Water Company-Hingham
900 Main Street
Hingham, MA 02043

Dear Mr. Olson:

RE: Registration #41913101

We have received the Registration Renewal Request you filed on behalf of Aquarion Water Company-Hingham, using forms modeled on the 2007 renewal process. As outlined in MassDEP's letter sent to all registrants on June 9, 2017, your existing Water Management Registration Statement has been extended four years by the Permit Extension Act and therefore is and will remain in effect through December 31, 2021. Consequently, your renewal request is not due until June 30, 2021. MassDEP has not yet provided application forms for the 2021 renewal process to registrants.

Because your Registration Renewal Request was filed four years early and not on the forms that will be provided for the 2021 renewal process, it is premature for MassDEP to make a determination as to whether your request complies with the requirements of 310 CMR 36.10. MassDEP intends to take action in 2021 at which time we will contact you regarding the renewal deadline and provide the necessary forms to file. In the meantime, please continue to comply with the terms and conditions of your existing Registration Statement, including the filing of your annual statement of withdrawal.

Please feel free to contact me at (617) 292-5706 if you have any questions regarding your Registration's status, the effect of the Permit Extension Act, or other Program developments.

Sincerely,

Duane LeVangie

Duane LeVangie, Program Chief
Water Management Program
Bureau of Water Resources

ATTACHMENT F

Coliform Sampling Plan

MassDEP Drinking Water Program - SERO

RTCR COLIFORM SAMPLING PLAN – Large Systems

PWS ID#: **4131000** PWS Name: **Hingham / Hull Aquarion Water Company** PWS Town: **Hingham/Hull**

Population Winter: **34,263** *# RS Winter samples:* **40** (# RS can not be < # of distribution systems)	Population Summer: **44,556** *# RS Summer samples:* **50** (# RS can not be < # of distribution systems)	TANKS: **2** *# RS* *Tank samples:* **2**

# RS Winter + # RS Tanks = **(RS)** samples required for Winter:	**42**	per	**Month**
# RS Summer + # RS Tanks = **(RS)** samples required for Summer:	**52**	per	**Month**
No. of raw water **(RW)** samples required:	**1**	per	**Month**
No. of plant tap **(PT)** samples required:	**1**	per	**Month**
No. of entry point **(EP)** samples required:	**0**	per	**Month**
TOTAL # of Samples Required Winter (RS + PT or EP +RW):	**44**	per	**Month**
TOTAL # of Samples Req.'d Summer (RS + PT or EP + RW):	**54**	per	**Month**

Sample Type*	Sample Code#*	DEP Approved Sample Site* Sampling Point Name and Street Address	Sampling Frequency		
RS	001	7-Eleven (Whiting) - 30 Whiting Street, Hingham	4/5	per	Month
UR	1a	Firestone Store - 22 Whiting Street			
DR	1b	Gourmet Garden - 48 Whiting Street			
RS	002	South Fire Station (Main Street), Hingham	4/5	per	Month
UR	2a	House of Prayer Church - 9I6 Main Street			
DR	2b	South School - 831 Main Street			
RS	003	Central Fire Station - 339 Main Street, Hingham	4/5	per	Month
UR	3a	G.A.R. Hall - 358 Main Street			
DR	3b	Jack Conway Realty - 319 Main Street			
RS	004	Stop & Shop - 400 Lincoln Street, Hingham	4/5	per	Month
UR	4a	Safety Fumigant - 197 Beal Street			
DR	4b	Marshall's Dept. Store - 428 Lincoln Street			
RS	005	Not in Use		per	Month
UR	5a	Not in Use			
DR	5b	Not in Use			
RS	006	South Shore Country Club - 274 South Street, Hingham	4/5	per	Month
UR	6a	267 South Street Residence			
DR	6b	Hingham Federal Credit Union - 19 Fort Hill Street			
RS	007	Hingham Animal Clinic - 146 Justice Cushing Highway, Hingham	4/5	per	Month
UR	7a	276 East Street Residence			
DR	7b	296 East Street Residence			

Key to Sample Type Codes

RS	Routine Sample site	(tap representative of the water system)	Example **Sample Code # 001, 002, etc.**
UR	Upstream Repeat sample site	(tap upstream of the RS sample tap)	Example **Sample Code # 001a, 002a, etc.**
DR	Downstream Repeat sample site	(tap downstream of the RS sample tap)	Example **Sample Code # 001b, 002b, etc.**
RW	Raw Water sample site	(untreated source water tap)	Example **Sample Code # RW-01G, RW-01S etc.**
PT	Plant Tap sample site	(entry point-finished, treated, water sample tap)	Example **Sample Code # 10000, 10001, etc.**
EP	Entry Point sample site	(entry point, untreated finished water sample tap)	Example **Sample Code # EP1, EP2, etc.**

* Sample Type, Sample Code#, and DEP Approved Sample Site must correspond to the sample columns on the DEP Total Coliform Report Form

For DEP/DWP use

Total # of bacteria samples required per 310 CMR 22.05 44/54 per winter/summer/month

Action: Approved Date: 3-1-2018

DWP Name: C. Shurtleff Signature:

MassDEP Drinking Water Program - SERO

COLIFORM SAMPLING PLAN

Sample Type*	Sample Code#*	DEP Approved Sample Site* Sampling Point Name and Street Address	Sampling Frequency		
RS	008	Hull Town Hall, Hull	4/5	per	Month
UR	8a	277 Atlantic Ave Residence			
DR	8b	Mary Lou News – 248 Atlantic Ave			
RS	009	"A" Street Fire Station – 669 Nantasket Ave, Hull	4/5	per	Month
UR	9a	The Good Geeks - 663 Nantasket Ave			
DR	9b	Sea Coast Realty – 679 Nantasket Ave			
RS	010	U.S. Coast Guard Station – 115 Highland Ave, Hull	4/5	per	Month
UR	10a	74 Main Street Residence			
DR	10b	100 Main Street Residence			
RS	011	Rite Aid – 184 Lincoln Street, Hingham	4/5	per	Month
UR	11a	Crow Point Pizza – 191 Lincoln Street			
DR	11b	Gulf Station – 179 Lincoln Street			
RS	012	Turkey Hill Storage Tank – 0 Turkey Hill Lane, Hingham	1	per	Month
UR	12a	146 Justice Cushing Highway			
DR	12b	162 Justice Cushing Highway			
RS	013	Accord Pond Storage Tank – 15 A Whiting Street, Hingham	1	per	Month
UR	13a	30 Whiting Street			
DR	13b	6 Whiting Street			
RS				per	Month
UR	a				
DR	b				
RS				per	Month
UR	a				
DR	b				
RS				per	Month
UR	a				
DR	b				
RS				per	Month
UR	a				
DR	b				
RS				per	Month
UR	a				
DR	b				
RS				per	Month
UR	a				
DR	b				
RS				per	Month
UR	a				
DR	b				

MassDEP Drinking Water Program - SERO

COLIFORM SAMPLING PLAN

Sample Type*		Sample Code#*		DEP Approved Sample Site* Sampling Point Name and Street Address		Sampling Frequency		
PT		1000		Hingham WTP, Distribution Water (900 Main Street), Hingham		4/5	per	Month
DR		1000b		House of Prayer Church (916 Main Street)				
DR		1000c		940 - 924 Main Street (residential customer)				
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						
PT							per	Month
DR		b						
DR		c						

MassDEP Drinking Water Program - SERO
COLIFORM SAMPLING PLAN

Sample Type*		Sample Code#*		DEP Approved Sample Site* Sampling Point Name and Street Address		Sampling Frequency		
EP							per	Month
DR		b						
DR		c						
EP							per	Month
DR		b						
DR		c						
EP							per	Month
DR		b						
DR		c						
EP							per	Month
DR		b						
DR		c						
EP							per	Month
DR		b						
DR		c						
RW		01S		Hingham WTP (Raw Water Composite Sample) 900 Main Street		4/5	per	Month
RW							per	Month
RW							per	Month
RW							per	Month
RW							per	Month
RW							per	Month
RW							per	Month
RW							per	Month
RW							per	Month
RW							per	Month

Public Water Supplier Signature: _____ **DATE:** 2/20/18

Also attach a map or sketch of your water supply distribution system showing the locations of the bacteria sampling sites, wells, and storage tanks.

ATTACHMENT G

Standard Operating Procedures

(Table of Contents)

AQUARION WATER COMPANY of
MASSACHUSETTS

Standard Operating Procedures

(Hingham Supply Operations)

Revised: April 2008

HINGHAM / HULL DISTRICT WTF
900 Main Street
Hingham, MA 02043

HINGHAM SUPPLY OPERATIONS

STANDARD OPERATING PROCEDURES

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Hingham Water Treatment Facility Operations and Maintenance Manual

August 1996

Metcalf & Eddy
An Air & Water Technologies Company

HINGHAM, MA WATER TREATMENT FACILITY
OPERATIONS AND MAINTENANCE MANUAL
AUGUST 1996

HINGHAM, MA WATER TREATMENT FACILITY
OPERATIONS AND MAINTENANCE MANUAL

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ATTACHMENT H

Cross-Connection Control Plan

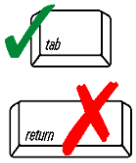
Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Drinking Water Program

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

Community public water systems (PWS) serving ≥ 3,300 persons must **complete this form in its entirety** to satisfy the requirements of 310 CMR 22.22(3)(b), which requires a PWS to have a cross connection control distribution system protection program plan (CCCPP) approved by the Massachusetts Department of Environmental Protection.

A. Public Water System (PWS) Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Aquarion Water Company (PWS Name) | 4136000 (PWS ID #)
   900 Main Street (Street Address or P.O. Box)
   Hingham (City) | MA (State) | 02043 (Zip Code)
   same as above (PWS Mailing Address if different from street address)
   (City) | (State) | (Zip Code)
   781-740-6693 (Phone Number) | 781-741-2572 (Fax Number (if available))
   www.aquarionwater.com (Website Address of PWS (if available)) | mdesorcy@aquarionwater.com (Email)

2. PWS Cross Connection Program Coordinator
   Paul Drapeau (Name)
   24 Providence Street (Street Address)
   Millbury (City) | MA (State) | 01527 (Zip Code)
   508-865-3998 (Phone Number) | 508-320-9176 (Cell Phone Number)
   pdrapeau@aquarionwater.com (Email (optional)) | 508-865-1384 (Fax Number (if available))
   31797 (MassDEP Tester and/or Surveyor Certificate Number) | 12/1/2012 (Expiration Date)

   NOTE: MassDEP recommends that the PWS Cross Connection Program Coordinator obtain MassDEP Tester and Surveyor Certification.

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

B. Plan Implementation

Under 310 CMR 22.22(3)(b)3., each public water system may engage a contractor or consultant to assist it in implementing its CCCPP. 310 CMR 22.22(3)(q), however, prohibits a PWS from using a contractor or consultant to review and approve design data sheets and plans for the proposed installation of a reduced pressure backflow preventer or double check valve assembly. If a PWS uses a contractor or consultant to implement its CCCPP, the PWS remains responsible for complying with 310 CMR 22.22, including implementation of its CCCPP.

1. Does the PWS use the services of a contractor or consultant to assist in the implementation of any portion of its CCCPP? ☒ Yes ☐ No

   If **yes**, provide the following information:

2. The contractor or consultant performs the following services for the PWS: (check all that apply)

   ☐ Inspecting Non-residential Facilities
   ☒ Testing of Backflow Prevention Devices
   ☐ Backflow Prevention Device Installation Plan Approval
   ☐ Other (specify): _____

3. Contractor or Consultant Quality Assurance Plan – If a contractor or consultant is used to assist in the implementation of an approved CCCPP, the PWS must develop a quality assurance plan. Indicate which, if any, of the following measures the PWS uses for quality assurance purposes:

   a. Review of backflow-prevention assembly tester performance? ☒ Yes ☐ No

   b. Verifying tester certification with MassDEP? ☒ Yes ☐ No

      Other (specify): _____

   c, Review of field test results? ☒ Yes ☐ No

      Other (specify): _____

   d. Requiring that field test equipment is periodically certified by an independent laboratory?

      ☒ Yes ☐ No

      Other (specify): _____

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

C. Cross Connection Inspections

Under 310 CMR 22.22(3)(c), each PWS is responsible for inspecting all industrial, commercial, and institutional premises served by it to determine whether cross connections exist and whether all cross connections are either properly protected by an appropriate control device or eliminated. This responsibility applies to both privately and publicly owned facilities served by the PWS. To demonstrate that this requirement will be met, the PWS CCCPP must have a process for identifying the locations where such protection is needed.

1. Describe the method the PWS will use to identify the industrial, commercial and institutional facilities connected to its distribution system:
   Identification through meter and billing classifications used in conjunction with definitions outlined by MA DEP classifications
2. Describe the method the PWS will use to identify any change in use of property that could subject a previously unregulated facility to a regulated facility:
   Contact and coordinate with local building and plumbing inspectors to notify Aquarion through permitting process.
3. Modified facilities: Explain in detail how PWS will identify potential changes in plumbing systems for existing facilities that may cause new cross connections:
   1. Through visual inspection and verbal communication during the backflow testing process as well as 2. Include a statement on the bottom of the backflow test form 3. Plumbing and building permits
4. Is PWS notified of newly proposed construction or modifications to existing facilities by the:

   ☐ Plumbing Inspector ☐ Fire Department ☐ Health Department ☐ Building Inspector

   ☐ Planning Board ☐ Zoning Board of Appeals ☒ Other (specify): Project engineers and contractors

   Survey Schedule: For those facilities that have not been previously surveyed or inspected, PWS should provide a proposed inspection schedule to MassDEP for approval. The proposed schedule should prioritize those facilities that pose the highest hazards.

5. If PWS has not yet fully inspected the facilities connected to its distribution system, identify below PWS's proposed survey completion date based on the degree of hazard: ☐ **fully inspected**

High Hazard Facilities	**All Other Facilities**
Completed	12/31/17
Date (mm/yyyy)	Date (mm/yyyy)

6. How many surveys will PWS need to complete each year to meet the foregoing completion dates?

   53

7. Describe PWS's plans for re-surveying non-residential facilities after the initial system-wide survey is completed:
   Resurvey high hazard facilities every 5 years- resurvey any facility that has had a change in classification e.g. commercial facility changing to industrial

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

C. Cross Connection Inspections (cont.)

Documentation of Surveys: PWS should identify how it will document each survey so that it can demonstrate that it has met the surveying requirements. PWS shall attach to its CCCPP copies of all forms that PWS intends to use to document completion of each survey. At a minimum, PWS shall include the date and address of each survey, the survey results, and the name of the person who performed the survey for each location.

8. PWS uses MassDEP's Cross-Connection Survey Report Form & Violation Notice (http://www.mass.gov/dep/water/approvals/dwsforms.htm#crosscon)? ☒ Yes ☐ No

9. Does PWS's survey report form identify the degree of hazard at the facility? ☒ Yes ☐ No

   If yes, does PWS maintain a database that identifies the degree of hazard at each facility? ☒ Yes ☐ No

   Note: PWS should include an explanation of what constitutes a cross connection in its survey report form to provide public education. PWS may insert a separate pamphlet for such purposes with this letter.

   Listing of Facilities: Under 310 CMR 22. 22.22(3)(d), each PWS must prepare and maintain an up to date list of the premises it has inspected and the locations of any control devices installed at such premises.

10. This list should also identify the cross connections that pose a high health hazard under 310 CMR 22.22(8)(a)3. In lieu of submitting this facilities list to MassDEP, PWS shall provide the following information:

Cross Connection Inspection and Survey Summary:

Facility	Total Number of Facilities Served by PWS		Number of Facilities Surveyed To Date		Number of Facilities Remaining to be Surveyed	
	A	High Hazard **	B	High Hazard **	A – B = C	High Hazard **
Non-residential *	595	74	292	74	265	0

* Non-residential facilities include all commercial, industrial, institutional, and municipal premises served by PWS.
** Determine the number of high hazard facilities for each category identified in 310 CMR 22.22(8)(a)3.

NOTE: PWS should submit any periodic updates to its Cross Connection Inspection and Survey Summary with the Annual Statistical Report required by 310 CMR 22.22(3)(j). PWS shall maintain its schedule for inspecting and surveying facilities, including the types of facilities inspected and surveyed annually, on-site in a readily accessible format.

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

D. Plan Reviews

Under 310 CMR 22.22(3)(q), each PWS is responsible for reviewing and approving design data sheets and plans for proposed new installations of reduced pressure backflow preventers and double check valve assemblies. A PWS may not delegate this responsibility to a contractor or consultant, unless authorized in writing by MassDEP. A PWS may use a contractor or consultant to assist in performing plan reviews, provided that all proposed recommendations or findings made by the contractor or consultant are issued on PWS's letterhead, reviewed by a PWS employee prior to issuance to the consumer and signed by a PWS employee.

Staffing: Under 310 CMR 22.22(3)(q), all design data sheets and plans for proposed new installations of reduced pressure backflow preventers and double check valve assemblies must be reviewed by a MassDEP Certified Cross Connection Surveyor. In lieu of submitting to MassDEP the name and certification number of the individual(s) reviewing and approving design data sheets and plans with PWS's CCCPP, PWS will provide this information on its Annual Statistical Report. PWS should maintain on-site in a readily accessible format a list of PWS's current and former certified surveyors. This list should include the name, certificate number, and timeframe that each MassDEP Certified Cross Connection Surveyor employed or engaged by PWS reviewed and approved such plans.

To demonstrate compliance with this requirement, PWS's CCCPP should include the following:

1. Documentation: Provide an explanation as to how PWS will document and issue plan approvals to ensure the device(s) proposed for installation provide adequate protection. Attach a copy of any forms used to provide such approvals, identify the location where the documentation will be maintained and describe the steps PWS will take to ensure proper review.
   After review of plumbing plans and design data sheets, PWS will provide an approval letter to specific facility. Documentation will be stored in local files as well as electronic database.

2. Does the Design Data Sheet contain the following information:

a.	Provided on PWS letterhead?	☒ Yes	☐ No
b.	Owners name and address?	☒ Yes	☐ No
c.	Facility name and address?	☒ Yes	☐ No
d.	Contact Person/Agent?	☒ Yes	☐ No
e.	Telephone number of facility contact person?	☒ Yes	☐ No
f.	Device Data?	☒ Yes	☐ No
g.	Plumbing Plan showing details of the specific installation?	☒ Yes	☐ No
h.	Owner/Agent Signature?	☒ Yes	☐ No
i.	Attached Sample?	☒ Yes	☐ No

Comments:

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

D. Plan Reviews (cont.)

3. Does the Installation Approval Letter contain the following information:

a.	Provided on PWS letterhead?	☒ Yes	☐ No
b.	Date of approval?	☒ Yes	☐ No
c.	Owner/occupant name and address?	☒ Yes	☐ No
d.	Facility name and address?	☒ Yes	☐ No
e.	Cross-connection to be protected?	☒ Yes	☐ No
f.	Size and make of device?	☒ Yes	☐ No

Conditions of Approval:

a.	Deadline by which device must be installed?	☐ Yes	☒ No
b.	Requirement, including timeframe, to notify PWS after installation?	☒ Yes	☐ No

Owner's responsibilities (see 310 CMR 22.22(4)):

c.	Notification requirements for the maintenance of cross connections?	☒ Yes	☐ No
d.	Arrangement for surveys and testing during regular business hours?	☒ Yes	☐ No
e.	Testing requirements of 14 calendar days after the installation of devices?	☒ Yes	☐ No

Other approval requirements (specify)? Height and space installation requirements on specific devices

f.	Signed by PWS Cross Connection Control Coordinator?	☒ Yes	☐ No
g.	Attached Sample?	☒ Yes	☐ No

h. CC to: ☒ Plumbing Inspector, ☒ Board of Health, ☒ Building Inspector, ☒ owners consultant, ☒ Local Fire Dept. (for fire sprinkler systems)

Comments:

4. Does the Installation Deficiency Letter contain the following information:

a.	Provided on PWS letterhead?	☒ Yes	☐ No
b.	Owner/occupant name & address?	☒ Yes	☐ No
c.	Facility name and address?	☒ Yes	☐ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

D. Plan Reviews (cont.)

d.	Location of cross-connection to be protected?	☒ Yes	☐ No
e.	Deficiency clearly stated?	☒ Yes	☐ No
f.	Signed by PWS Cross Connection Control Coordinator?	☒ Yes	☐ No
g.	Attached Sample?	☒ Yes	☐ No

Comments:

E. Approval of Cross Connections

Under 310 CMR 22.22(3)(g), each PWS must not allow any cross connection at any point within its system unless it has been approved pursuant to 310 CMR 22.22. To demonstrate that it will meet these requirements, PWS's CCCPP must outline the measures PWS will take to review and approve cross connections, including how it will determine if a proposed backflow device provides adequate protection.

1. Explain what measures the PWS will take to review and approve cross connections, including how it will determine if a proposed backflow device(s) provides adequate protection:
   By reviewing plans, inspecting installations by degree of hazard to ensure device will provide proper protection as outlined by 310 CMR 22.22
2. Are PWS's installation requirements more stringent than those in 310 CMR 22.22 Table 22-1 and 310 CMR 22.22(10)? ☐ Yes ☒ No
3. If PWS's standards are more stringent than those in 310 CMR 22.22 Table 22-1 and 310 CMR 22.22(10), does PWS have a written by-law, ordinance or regulation in effect that gives PWS the authority to enforce its standards? (If yes, provide a copy of such with submittal of PWS's CCCPP.) ☐ Yes ☐ No

   Under 22.22(8)(a)3, the following types of facilities are deemed to pose high health hazard conditions. In-plant protection at these facilities must be supplemented by the installation of a reduced pressure backflow preventer or an air gap separation at the meter or property line (total containment), unless an approved device is installed on a dedicated or process line or in-plant cross connection(s) control is otherwise achieved to the satisfaction of MassDEP, its designee or PWS:

   Nuclear reactors or other facilities where radioactive materials are used
   Sewage treatment plants and sewage pumping stations
   Piers, docks, marinas, shipyards
   Chemical plants
   Metal plating industries
   Hospitals, mortuaries, medical clinics, dental offices and clinics

4. In addition to the above listed facilities, are there any other types of facilities the PWS has determined to pose a high health hazard condition requiring the installation of a reduced pressure backflow preventer or an air gap separation at the meter or property line? ☐ Yes ☒ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

E. Approval of Cross Connections (cont.)

If yes, list those types of facilities would require the installation of a reduced pressure backflow preventer or an air gap separation at the meter or property line:

5. Does PWS maintain a list of facilities based on degree of hazard? ☒ Yes ☐ No

Approval and Permit Requirements:

6. Does PWS check that a plumbing permit has been obtained from the local plumbing inspector after PWS has approved an installation plan but prior to installation (other than devices installed on a fire protection system)? ☐ Yes ☒ No

Fire Protection Systems:

7. Does PWS check that a permit has been obtained from the Fire Department after PWS approves plan and prior to device installation on a fire protection system? ☒ Yes ☐ No
8. Is a building permit required prior to device installation? ☐ Yes ☒ No
9. Is PWS approval required prior to the issuance of local building occupancy permits?* ☐ Yes ☒ No

*PWS approval is a recommended practice but it is not currently a regulatory requirement.

Comments:

F. Device Initial Inspection

Under 310 CMR 22.22(3)(r), each PWS must ensure, upon completion of installation, that a backflow prevention device is installed in accordance with the approved design data sheet and plans, and tested for proper operation. The PWS CCCPP must explain the process for conducting initial inspections and tests, identify who will perform these inspections and tests, and include the timeframes for doing so.

1. PWS's Initial inspection and test will be performed by:

   ☒ PWS certified surveyor and tester ☐ Contracted certified surveyor and tester

2. Does PWS:

   a. Require written notification of completed device installation within 14 calendar days after the installation of devices? ☒ Yes ☐ No
   b. Allow for verbal notification of completed device installation within 14 calendar days after the installation of devices? ☒ Yes ☐ No
   c. Allow owner/occupant to hire a certified tester to conduct the initial test? ☐ Yes ☒ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

F. Device Initial Inspection (cont.)

d. Bring the device design data sheet and plans to the inspection? ☒ Yes ☐ No

e. Issue a local permit and assign a device identification number after inspection and testing? ☒ Yes ☐ No

f. Add newly installed devices to PWS's regular testing schedule? ☒ Yes ☐ No

PWS assigns a technical identification number and equipment number to each device

Comments:

3. Describe how PWS requires notification of the installation of the backflow device, and the steps that are taken to inspect the installation and testing of the device.
Upon verbal, written or electronic notification of device installation, PWS certified tester inspects device within fourteen days.

G. Violations

Under 310 CMR 22.22(3)(m), each PWS is required to notify the owner of the premises of any violation of 310 CMR 22.22, such as failure to install protection, failure to maintain a device, and failure to meet testing requirements, by sending a written Notice of Violation. The PWS's CCCPP should include a copy of any forms used for enforcement purposes to provide such notice and indicate where the Notices of Violations are kept.

1. Describe how PWS notifies cross connection owners of violations:

Verbal and written notice of violation to owner of cross connection

2. Does PWS's Notification of Violation contain the following minimum information?

a. Provided on PWS letterhead? ☒ Yes ☐ No

b. Information included in PWS's initial Survey Report Form? ☒ Yes ☐ No

c. Date by which violation must be corrected? ☒ Yes ☐ No

d. Rules and Regulations that provides for the assessment of fines for noncompliance? ☒ Yes ☐ No

e. Rules and Regulations that provides for the termination of service for noncompliance? ☒ Yes ☐ No

f. Statement of property owner's responsibilities for cross connection control? ☒ Yes ☐ No

g. Property owner's name & address? ☒ Yes ☐ No

h. Signed by PWS Cross Connection Control Coordinator? ☒ Yes ☐ No

i. Attached Sample? ☒ Yes ☐ No

Comments:

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

G. Violations (cont.)

3. Does PWS provide the cross connection owner with a Second Violation Notice if corrective action is not initiated after the first violation notice is issued? ☒ Yes ☐ No Attached Sample ☒

Comments:

Termination of Service Notice

4. Does PWS have written procedures for Termination of Service if corrective action is not initiated after a Notice of Violation is issued? ☒ Yes ☐ No
   If **yes**, does PWS provide the cross connection owner with a **Termination of Service Notice**? ☒ Yes ☐ No
   If **yes**, does the notice include: The date by which water service will be terminated if the violation is not corrected? ☒ Yes ☐ No
5. Does PWS have the ability to refer violations for enforcement if a violation is not corrected? ☒ Yes ☐ No

   Attached Sample? ☐ Yes ☒ No

Termination of service procedures outlined in rates, rules and regulations approved by MA DPU
Comments:

6. Has PWS adopted a local ordinance, by-law, regulation or policy for cross-connection control that specifically addresses Termination of Service? ☒ Yes ☐ No Attached Copy ☐

   If no, when does PWS intend to adopt such local requirements? _____ Date (mm/yyyy)

   If PWS intends to adopt such local requirements, attach a copy, if available. Attached Copy ☐

7. If PWS has not established procedures for Termination of Service, describe how PWS addresses continuing cross connection violations.

H. Device Testing

Under 310 CMR 22.22(3)(h), each PWS must ensure that all double check valves and reduced pressure backflow preventer devices are inspected and tested in accordance with 310 CMR 22.22(13). To demonstrate compliance with this requirement, the CCCPP must outline the following:

1. Testing Frequency:

   a. Verify the frequency of inspecting and testing for the following devices:

   b. Reduced pressure backflow preventer devices (RPBP)? ☒ Twice per year

   c. Double check valves assemblies (DCVA)? ☒ Once per year

   d. Seasonal reduced pressure backflow preventer devices (RPBP)? * ☒ Once per year

   e. Are seasonal devices physically removed at the end of the season? ☒ Yes ☒ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

H. Device Testing (cont.)

f. Are seasonal devices tested prior to being put back into service? ☒ Yes ☐ No

* Seasonal reduced pressure backflow preventer devices (RPBP) are devices that are in service less than six months per year

2. Testing PVB

a. Does PWS maintain records for the installation of pressure vacuum breakers (PVBs)? ☐ Yes ☒ No

b. Does PWS approve and permit PVBs? ☐ Yes ☒ No

c. Does PWS have a program for inspecting and testing PVBs? ☐ Yes ☒ No

d. If no, does PWS encourage owners to arrange testing of PVBs by a Certified Backflow Prevention Device Tester at least annually? (310 CMR 22.22(13)(d)) ☒ Yes ☐ No

e. If yes, does PWS require the owner to submit the test results? ☐ Yes ☐ No

NOTE: As required by 310 CMR 22.22(3)(e), all device tests must be conducted by a MassDEP certified Backflow Prevention Device Tester. PWS has the option of testing the devices itself, having its contractor or consultant test the devices or requiring the owner to arrange such testing.

In lieu of submitting to MassDEP the names, and certification numbers of individuals who perform backflow prevention device testing with its CCCPP, PWS may provide this information with its Annual Statistical Report. PWS shall maintain on-site (in electronic or hard copy format) a list of PWS's current and former certified testers. The list shall include the name, certificate number, and timeframe during which the individual performed such testing for PWS.

3. Does PWS allow owners to test their own backflow prevention devices in accordance with 310 CMR 22.22(3)(h)? ☐ Yes ☒ No

If yes, does PWS audit such tests as required by 310 CMR 22.22(3)(i)? ☐ Yes ☐ No

If yes, describe how PWS conducts such audits: _____

4. Explain how PWS manages the scheduling and testing of backflow prevention devices.*

See attached Sample Letter- scheduling and testing for round one May-June and round two Nov-Dec

*No two routine tests required by 310 CMR 22.22 for reduced pressure backflow preventers shall be conducted within five months of each other without the written approval of the Department in accordance with 310 CMR 22.22(13)(f).

If PWS uses a contractor or consultant for the testing of backflow prevention devices, state how PWS will track the testing schedule.

5. Explain how PWS would handle a denial of access to test devices at a facility.

Certified letter sent to owner of facility outlining termination of service.

a. Is the Board of Health notified? ☒ Yes ☐ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

H. Device Testing (cont.)

b. Is the Fire Department notified? ☒ Yes ☐ No

6. What steps will be taken in the event of a failed test? Identify any notices issued and the timetable for inspection and follow-up.
Verbal and written communication of failure and timetable for repair and retest

a. Is a written notice of device failure provided to property owner? ☒ Yes ☐ No

b. If yes, does the notice include a timetable for corrective action? ☒ Yes ☐ No

c. Attached Sample? ☒ Yes ☐ No

Comments:

7. Explain how PWS documents testing:

Written test form with customer/owner signature as well as electronic notification/spreadsheet

8. If PWS uses a contractor or consultant for testing, does PWS retain all documentation on-site in electronic or hard copy format? ☒ Yes ☐ No
NOTE: As required by 310 CMR 22.22(3)(d) every PWS shall maintain on PWS premises in a readily accessible form records of all device locations and list of devices and inspections of approved backflow prevention devices.

If no, explain why not: _____

9. Does PWS use MassDEP's Inspection and Maintenance Report Form (http://www.mass.gov/dep/water/approvals/dwsforms.htm#crosscon)? ☐ Yes ☒ No

If no, ☒ Attach Sample

Comments:

10. Does the PWS use MassDEP's "Device Repair and Re-test Report Form" (http://www.mass.gov/dep/water/approvals/dwsforms.htm#crosscon)? ☐ Yes ☒ No

If no, ☒ Attach Sample

I. Notifications

Under 310 CMR 22.22(3)(n), each PWS must notify all device owners of their responsibilities relative to cross connection control.

1. Does PWS have an educational program for non-residential consumers, including industrial, commercial and, institutional premises? ☒ Yes ☐ No

If no, when does PWS plan to implement such a program? n/a
Date (mm/yyyy)

Non-residential customers are handled through our survey and testing programs. Additional cross connection information is available on Company website as well as through annual CCR

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

I. Notifications (cont.)

2. The types of users targeted through your PWS education program are (check all that apply):

   ☒ Industrial ☒ Commercial ☒ Institutional

3. How does the PWS communicate information to the public about its CCCPP?

   a. Included with individual water service applications for new or proposed changes in use? ☒ Yes ☐ No

   b. Annual mailings of newsletters? ☒ Yes ☐ No

   c. Information posted on the town website? ☒ Yes ☐ No

   d. Water bill stuffers? ☒ Yes ☐ No

   e. Semi-annual/annual testing reports? ☒ Yes ☐ No

   Other (specify): _____

4. How does PWS notify device owners of their responsibilities relative to cross connection control?

   a. During semi-annual/annual testing? ☒ Yes ☐ No

   b. During annual informational meetings? ☒ Yes ☐ No

   c. Attached Sample? ☐ Yes ☒ No

   Other (specify): Through device design data sheets and various approval letters as part of overall cross connection program

5. Does PWS require a containment device* at the service connection on all facilities even if there are no cross connections within that facility? ☐ Yes ☒ No
   If yes, does PWS have an ordinance, by-law or regulation requiring such containment? (provide a copy with the submittal of CCCPP) ☐ Yes ☐ No
   *Containment policy means ALL services connections have a device installed at the meter regardless of the existence of a cross connection.

6. Identify the person responsible for providing the notification:

   a. ☒ PWS cross connection control coordinator ☐ Contractor

   ☐ Other (specify): _____

   b. What is the means of delivery? ☒ Hand delivery ☒ US Mail ☒ E-mail

   ☒ Other (specify): Company website

   c. When will the notification be provided each year? 07/01/2012
   Date (mm/yyyy)

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

J. Public Outreach Activities

Under 310 CMR 22.22 (3)(o), a PWS is responsible to annually notify consumers of water and local public officials of the requirements of the distribution system cross connection control program, including Mayors, Town Managers, city and town councilors or selectmen, water commissioners, fire chiefs, local boards of health, plumbing inspectors, building inspectors, local state representatives.

1. Does PWS annually notify local public officials of the requirements of their CCCPP requirements?

   If **yes**, check all boxes that apply:

   ☐ Mayor/Town Manager ☐ Water Commissioners ☐ Local State Representatives

   ☐ Plumbing Inspector ☐ Board of Health ☐ Selectmen/Councilmen

   ☐ Fire Department ☐ Building Inspector ☐ Plumbers

   ☐ Sprinkler fitters ☐ Irrigation system installers

   ☐ Other (specify): _____

   If **no**, when does PWS plan to implement this requirement? 03/01/2013
   Date (mm/yyyy)

2. Does PWS have a working relationship with the local plumbing inspector and board of health to provide effective surveillance of the distribution system? ☐ Yes ☒ No
3. Does PWS periodically meet with local officials and industry professionals to review cross connection control program requirements? ☒ Yes ☐ No

K. Residential Program

Under 310 CMR 22.22(3)(f), each PWS is responsible for establishing and maintaining a cross connection control program for residential consumers that includes an education component.

1. Has PWS established a cross connection control program for residential users that includes an educational component describing what a cross-connection is and the customer's responsibility for preventing them? ☒ Yes ☐ No

   If no, by what date does your system PWS plan to implement such an education program?

   _____
   Date (mm/yyyy)

2. How does PWS intend to comply with the education component for residential consumers?

   Through annual CCR and Company website

   a. Does the educational material PWS provides contain the following information?
      Attached Sample ☒
   b. An explanation of what a cross-connection is? ☒ Yes ☐ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

K. Residential Program (cont.)

c. Examples of where cross connections are typically found, such as:

☒ lawn irrigation systems ☒ submerged hoses ☒ chemical spray applicators

☒ auxiliary wells ☒ boilers ☐ solar heat systems ☐ fire sprinkler systems

☐ other (specify): _____

The consumer's role in preventing cross-connections? ☒ Yes ☐ No

d. An explanation of the types of backflow protection? ☒ Yes ☐ No

☒ air gap ☒ pressure vacuum breaker assembly (PVB)

☒ reduced principle assembly (RP) ☒ double check valve assembly (DCVA)

e. Where the homeowner can get more information? ☒ Yes ☐ No

Provide any additional information about the residential cross connection program PWS would like MassDEP to consider.
www.aquarionwater.com

L. Program Administration

1. Records: Under 310 CMR 22.22(3)(d), each PWS is responsible for maintaining on-site in a readily accessible format (i.e. electronic or hard copy format) the following documentation*:

   A schedule of all facilities inspected and surveyed; records of all device locations; related correspondence, including notices of violations; and, a list of devices and inspections of approved backflow prevention devices.
   *This list should not be considered all inclusive.

   Is PWS able to provide MassDEP with a complete list (in electronic or hard copy format) of RPBP and DCVA installed in its system within 2 hours of a request? ☒ Yes ☐ No

2. File Management: PWS maintains a file (in electronic or hard copy format) which will permit ready review of the following:
   a. Master List of all facilities with backflow prevention devices including location of device, type of device used, make, model, size, serial number, etc.? ☒ Yes ☐ No
   b. Correspondence between PWS and its customers? ☒ Yes ☐ No
   c. Copy of Approved Plan? ☒ Yes ☐ No
   d. Test reports for each device? ☒ Yes ☐ No
   e. Copies of MassDEP Certificates for each tester and surveyor? ☒ Yes ☐ No

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

L. Program Administration (cont.)

f. Cross Connection Survey Reports? ☒ Yes ☐ No

g. Residential surveys? ☐ Yes ☒ No

h. Backflow incident reports? ☒ Yes ☐ No

i. Records on initial surveys, recommendations, follow-up, corrective action, re-surveys? ☒ Yes ☐ No

j. Public education pamphlets and information? ☒ Yes ☐ No

k. Copies of test kit calibrations? ☒ Yes ☐ No

l. Copy of Approved Regulation/Ordinance/Bylaw? ☒ Yes ☐ No

m. Does PWS have a system designed to notify cross-connection control personnel when testing and re-inspections of premises are needed? ☒ Yes ☐

3. Annual Reporting: Under 310 CMR 22.22 (3)(j), the PWS must submit annually report to MassDEP using a form provided by MassDEP for such purposes.

   PWS's CCCPP should explain who will be responsible for preparing and submitting these reports, the sources of information used to complete these reports and the locations where copies of the reports will be kept:

   Cross connection plan coordinator - information stored at local distribution center

4. Fees Requirements: PWS's CCCPP must identify the fees associated with the implementation of its cross connection program.

   Fees:

Survey	$0	Testing	$75.00	Mutiple Tests	$35.00
Plan approval	$0	Other	$35.00	Retest Fee (specify)	

M. Emergencies

Under 310 CMR 22.04(13)(a), each PWS must prepare and keep in an easily accessible location an Emergency Response Plan prepared in accordance with 310 CMR 22.04(13) and Massachusetts Drinking Water Guidelines and Policies for Public Water Supplies, Chapter 12 - Emergency Response Planning Requirements Guidance including Appendix O - Handbook for Water Supply Emergencies. The Emergency Response Plan shall include detailed steps that the PWS shall implement to ensure the continuation of service in the event of a potential or actual emergency, including but not limited to "contamination of water in the distribution system from backflow".

Describe how the PWS's Emergency Response Plan addresses contamination of water in the distribution system from a backflow incident:
PWS ERP addresses contamination of water in the distribution system from backflow following Mass DEP best practice guide including initial notifications, response actions and follow up actions.

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

N. Additional Comments:

O. Program Staffing

1. PWS staff responsible for oversight of cross-connection inspections?
(check box if same person for all categories ☒)

First Name	Last Name
Paul	Drapeau

Title	Phone Number	Email
Utility Worker (CCCC)	508-865-3998	pdrapeau@aquarionwater.com

2. PWS staff responsible for oversight of plan reviews?

First Name	Last Name

Title	Phone Number	Email

3. PWS staff responsible for oversight of plan approvals?

First Name	Last Name

Title	Phone Number	Email

4. PWS staff responsible for oversight of violations and other correspondence?

First Name	Last Name

Title	Phone Number	Email

5. PWS staff responsible for oversight of testing?

First Name	Last Name

Title	Phone Number	Email

6. PWS staff responsible for oversight of Notifications?

First Name	Last Name

Title	Phone Number	Email

Cross-Connection Control Program Plan for Community Public Water Systems with Population ≥ 3,300

O. Program Staffing (cont.)

7. PWS staff responsible for oversight of Residential Program?

First Name | Last Name

Title | Phone Number | Email

8. PWS staff responsible for oversight of Annual Statistical Report?

First Name | Last Name

Title | Phone Number | Email

Certification

I hereby certify under penalties of law that I am authorized to prepare this application, and that the information contained herein is true, accurate and complete to the best of my knowledge and belief.

	5/23/12
Signature	Date
Michelle Desorcy	Operations Manager
Print Name	Title
508-865-3998	mdesorcy@aquarionwater.com
Phone #	Email

MassDEP Use Only:

Received on (Date)

Reviewed for Administrative Completeness by: (Print Name) | Title

Administrative Deficiency sent by: (Print Name) | Administrative Deficiency sent on (Date)

Administrative Approval on (Date)

Comments

ATTACHMENT I

2018 and 2019 Water Quality Reports

AQUARION
Water Company
Stewards of the Environment™

2018 Water Quality Report

Hingham, Hull and North Cohasset System

It's Time To Conserve.

Water: It's Too Precious To Waste.

Hingham, Hull and North Cohasset System Water Quality Table

AQUARION Water Company
Stewards of the Environment™

Your water has been tested for more than 100 compounds that are important to public health. Only 14 of these were detected, all of which were below the amounts allowed by state and federal law. Most of these compounds are either naturally occurring or introduced as treatment to improve water quality. Monitoring frequency varies from daily to once every nine years per EPA regulation, depending on the parameter.

Our testing encompasses the full range of regulated inorganic, organic and radiological compounds and microbiological and physical parameters. Results shown below are for detected compounds only.

	Highest Allowed by Law				Hingham/Hull/ North Cohasset System Detected Level	
Substance (Units of Measure)	**MCLG**	**MCL**	**Compliance**	**Test Date**	**Average**	**Range**
Inorganic Compounds						
Barium (ppm)	2	2	**YES**	2018	0.028	0.028
Copper (ppm)	1.3	AL = 1.3	**YES**	2018	0.56*	
Fluoride (ppm)	4.0	4.0	**YES**	2018	0.67	0.55 – 0.91
Lead (ppb)	0	AL = 15	**YES**	2018	1**	
Nitrate (ppm)	10	10	**YES**	2018	0.590	0.590
Perchlorate (ppb)	NA	2	**YES**	2018	0.05	0.05
Microbials						
Turbidity (NTU)	NA	TT = 1 max	**YES**	2018	0.10+	0.04 – 0.29
Turbidity (NTU)	NA	TT = 95% of samples < 0.3	**YES**	2018	100%	
Disinfectant						
Chlorine (ppm)	MRDLG 4	MRDL 4	**YES**	2018	0.52	ND < 0.05 – 1.58
Organic Compounds						
Total Trihalomethanes (ppb)	NA	80	**YES**	2018	57***	19 – 77
Total Haloacetic Acids (ppb)	NA	60	**YES**	2018	32***	2 – 67
Inorganic Compounds						
Chloride (ppm)	NA	SMCL = 250	**NA**	2018	115	115
Manganese (ppb)	NA	SMCL = 50	**NA**	2018	30	30
Sodium (ppm)	NA	ORSG = 20	**NA**	2018	67	67
Sulfate (ppm)	NA	SMCL = 250	**NA**	2018	70	70

HEALTH EFFECTS

Maganese: Manganese is a naturally occurring mineral. At a level greater than 0.05 mg/L (50 ppb), the water will appear brown, taste unpleasant, and may leave black stains on fixtures or on laundry. While manganese is part of a healthy diet, it can be harmful if consumed in large concentrations.

Sodium: Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, who drink water containing sodium, should be aware of levels where exposures are being carefully controlled.

Footnotes and Definitions for table on left

<	Less than
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MRDL	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
NA	Not Applicable
ND	Not Detected
NTU	Nephelometric Turbidity Units, a measure of the presence of particles. Low turbidity is an indicator of high-quality water.
ORSG	Office of Research and Standards Guideline – State of Massachusetts
ppb	parts per billion, or micrograms per liter (ug/L)
ppm	parts per million, or milligrams per liter (mg/L)
SMCL	Secondary Maximum Contaminant Level
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
*	90th percentile value in copper monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for copper.
**	90th percentile value in lead monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for lead.
***	Reported value is the highest locational, annual average of quarterly measurements for disinfection by-products in the distribution system. Values in the range are individual measurements.
+	Value is the highest monthly average for turbidity reported from the treatment plant effluent. Values in the range are individual measurements. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.

AQUARION
Water Company
Stewards of the Environment™

2019 Water Quality Report

Hingham, Hull and North Cohasset System

Water: It's Too Precious To Waste.

In This Report

Hingham, Hull and North Cohasset System Water Quality Table:

Your water has been tested for more than 100 compounds that are important to public health. Only 14 of these were detected, all of which were below the amounts allowed by state and federal law. Most of these compounds are either naturally occurring or introduced as treatment to improve water quality. Monitoring frequency varies from daily to once every nine years per EPA regulation, depending on the parameter. Our testing encompasses the full range of regulated inorganic, organic and radiological compounds and microbiological and physical parameters. Results shown below are for detected compounds only.

	Highest Allowed by Law				Hingham/Hull/ North Cohasset System Detected Level	
Substance (Units of Measure)	**MCLG**	**MCL**	**Compliance**	**Test Date**	**Average**	**Range**
Inorganic Compounds						
Barium (ppm)	2	2	**YES**	2019	0.024	0.024
Copper (ppm)	1.3	AL = 1.3	**YES**	2019	0.72*	
Fluoride (ppm)	4.0	4.0	**YES**	2019	0.68	0.20 – 0.86
Lead (ppb)	0	AL = 15	**YES**	2019	2**	
Nitrate (ppm)	10	10	**YES**	2019	0.520	0.520
Perchlorate (ppb)	NA	2	**YES**	2019	0.09	0.09
Microbials						
Turbidity (NTU)	NA	TT = 1 max	**YES**	2019	0.13+	0.01 – 0.18
Turbidity (NTU)	NA	TT = 95% of samples < 0.3	**YES**	2019	100%	
Disinfectant						
Chlorine (ppm)	MRDLG 4	MRDL 4	**YES**	2019	0.53	ND < 0.05 – 1.52
Organic Compounds						
Total Trihalomethanes (ppb)	NA	80	**YES**	2019	63***	24 – 92
Total Haloacetic Acids (ppb)	NA	60	**YES**	2019	36***	2 – 51
Inorganic Compounds						
Chloride (ppm)	NA	SMCL = 250	**NA**	2019	93	93
Manganese (ppb)	NA	SMCL = 50	**NA**	2019	40	40
Sodium (ppm)	NA	ORSG = 20	**NA**	2019	85	85
Sulfate (ppm)	NA	SMCL = 250	**NA**	2019	45	45

HEALTH EFFECTS

Manganese: Manganese is a naturally occurring mineral found in rocks, soil, ground water, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but can have undesirable effects on certain sensitive populations at elevated concentrations. The United States EPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (micrograms per liter), or 50 parts per billion. In addition, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for manganese. Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L (parts per billon), the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ug/L and, over the short term, it recommends that people limit their consumption of water with levels over 1,000 ug/L, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 ug/L, nor should formula for infants be made with that water for more than a total of 10 days throughout the year.

Sodium: Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, who drink water containing sodium, should be aware of levels where exposures are being carefully controlled.

AQUARION Water Company
Stewards of the Environment™

Footnotes and Definitions for table on left

<	Less than
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MRDL	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
NA	Not Applicable
ND	Not detected
NTU	Nephelometric Turbidity Units: a measure of the presence of particles. Low turbidity is an indicator of high-quality water.
ORSG	Office of Research and Standards Guideline – State of Massachusetts
ppb	parts per billion, or micrograms per liter (ug/L)
ppm	parts per million, or milligrams per liter (mg/L)
SMCL	Secondary Maximum Contaminant Level
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
*	90th percentile value in copper monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for copper.
**	90th percentile value in lead monitoring. Result is representative of customer sampling stagnant water. One location exceeded the action level for lead.
***	Reported value is the highest locational, annual average of quarterly measurements for disinfection by-products in the distribution system. Values in the range are individual measurements.
+	Value is the highest monthly average for turbidity reported from the treatment plant effluent. Values in the range are individual measurements. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.

ATTACHMENT J

Lead and Copper Sampling Plan

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

LCR –A

DRINKING WATER PROGRAM

LEAD AND COPPER SAMPLING PLAN

PWS ID #: 4131000 PWS Name: Hingham Water System City/Town: Hingham
Telephone #: (781) 741-1400 Population: 35,803 winter # Samples required: 60 ☒ Standard Plan ☐ Reduced Plan

#	Sample Category (Tier)	SAMPLE			How will the sample be collected? Check one (√)			
		PRIMARY [1] Site Address	Location Check one (√)		PWS	Homeowner/ Resident	Lab	Other
			K[2]	B[3]				
1	1	20 Clifton Avenue, Hull	TBD			X		
2	1	1 Button Cove Rd, Hingham	TBD			X		
3	1	1 Mountford Rd, Hull	TBD			X		
4	1	80 Pleasant St, Hingham	TBD			X		
5	1	63 Free St, Hingham	TBD			X		
6	1	15 Myers Farm Rd, Hingham	TBD			X		
7	1	8 Myers Farm Rd, Hingham	TBD			X		
8	1	1 Saw Mill Pond Rd, Hingham	TBD			X		
9	1	515 Main St, Hingham	TBD			X		
10	1	3 Fulling Mill Lane, Hingham	TBD			X		
11	1	23 Halvorsen Ave, Hull	TBD			X		
12	1	14 Camelot Dr, Hingham	TBD			X		
13	1	183 Prospect St, Hingham	TBD			X		
14	1	22 Andrew Ave, Hull	TBD			X		
15	1	77 Summer St, Hingham	TBD			X		
16	1	5 Winfield Rd, Hingham	TBD			X		
17	1	12 New Towne Dr., Hingham	TBD			X		
18	1	5 Harborview Drive, Hingham	TBD			X		
19	1	155 Prospect St, Hingham	TBD			X		
20	1	18 Saw Mill Pond Rd, Hingham	TBD			X		
21	1	31 Myers Farm Rd, Hingham	TBD			X		
22	1	10 Myers Farm Rd, Hingham	TBD			X		
23	1	79 Summer St, Hingham	TBD			X		
24	1	12 Deerfield Rd, Hingham	TBD			X		
25	1	4 Huckleberry Hill Lane, Hingham	TBD			X		
26	1	40 George Washington Blvd, Hingham	TBD			X		
27	1	19 Fulling Mill Lane, Hingham	TBD			X		
28	1	15 Saw Mill Pond Rd, Hingham	TBD			X		
29	1	28 Floret Circle, Hingham	TBD			X		
30	1	40 Floret Circle, Hingham	TBD			X		
31	1	22 Floret Circle, Hingham	TBD			X		
32	1	62 Thistle Patch Way, Hingham	TBD			X		
33	1	44 Floret Circle, Hingham	TBD			X		
34	1	81 Summer St, Hingham	TBD			X		
35	1	80 Thistle Patch Way, Hingham	TBD			X		
36	1	60 Thistle Patch Way, Hingham	TBD			X		
37	1	110 Thistle Patch Way, Hingham	TBD			X		
38	1	72 Thistle Patch Way, Hingham	TBD			X		
39	1	1 Clifton Ave, Hull	TBD			X		
40	1	16 Milford St Unit 1, Hull	TBD			X		
41	1	16 Milford St Unit 5, Hull	TBD			X		

42	1	16 Milford St Unit 8, Hull	TBD			X		
43	1	12 Floret Circle, Hingham	TBD			X		
44	1	153 Whiting Street, Hingham	TBD			X		

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION **LCR -A**
DRINKING WATER PROGRAM

LEAD AND COPPER SAMPLING PLAN

*Please type or print clearly using black ink and **attach a sample location site plan***
PWS ID #: 4131000 PWS Name: Hingham Water System City/Town: Hingham
Telephone #: (781) 741-1400 Population: 35,803 winter # Samples required: 60 ☒ Standard Plan ☐ Reduced Plan

#	Sample Category (Tier)	SAMPLE			How will the sample be collected? Check one (√)			
		PRIMARY [1] Site Addresses (continued)	Location Check one (√)		PWS	Homeowner/ Resident	Lab	Other
			K[2]	B[3]				
45	1	6 Mallard Run, Hingham	TBD			X		
46	1	103 High Street, Hingham	TBD			X		
47	1	14 Liberty Pole Road, Hingham	TBD			X		
48	1	9 Liberty Pole Road, Hingham	TBD			X		
49	1	18 Park View Drive, Hingham	TBD			X		
50	1	28 Wanders Drive, Hingham	TBD			X		
51	1	18 Fulling Mill Lane, Hingham	TBD			X		
52	1	2 Button Cove Rd, Hingham	TBD			X		
53	1	7 Saw Mill Pond Road, Hingham	TBD			X		
54	1	151 Whiting Street, Hingham	TBD			X		
55	1	26 Myers Farm Rd, Hingham	TBD			X		
56	1	93 Tower Road, Hingham	TBD			X		
57	1	10 Cliff Rd, Hingham	TBD			X		
58	1	5 Pheasant Run, Hingham	TBD			X		
59	1	1 Elm Street, Hull	TBD			X		
60	1	19 Liberty Road, Hingham	TBD			X		
61	1	12 Boulder Glen Road, Hingham	TBD			X		
		ALTERNATIVE [1]* Site Addresses						
1	1	90 Thistle Patch Way, Hingham	TBD			X		
2	1	72 Thistle Patch Way, Hingham	TBD			X		
3	1	5 Harbor View Drive, Hingham	TBD			X		
4	1	265 High Street, Hingham	TBD			X		
5	1	17 Halvorsen Ave, Hull	TBD			X		
6	1	7 Saw Mill Pond Road, Hingham	TBD			X		
7	1	63 New Bridge Street, Hingham	TBD			X		
8	1	151 Whiting Street, Hingham	TBD			X		
9	1	1 Clifton Ave, Hull	TBD			X		
10	1	93 Tower Road, Hingham	TBD			X		
11	1	21 Saw Mill Pond Road, Hingham	TBD			X		
12	1	5B Fulling Mill Lane, Hingham	TBD			X		
13	1	36 Vautrinot Ave, Hull	TBD			X		
14	1	6 Mallard Run, Hingham	TBD			X		
15	1	14 Bradley Park Drive, Hingham	TBD			X		
		SCHOOLS[4]						

1	N/A	See LCR-B						

If any of the above sites are not Tier 1 sites in accordance with Massachusetts Drinking Water Regulations 310 CMR 22.06B my signature below indicates that Tier 1 sites were not available and that I have provided MassDEP with a "materials survey" and have complied with 310 CMR 22.06B(7). I certify under penalty 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 of my knowledge and belief.

Signature of authorized public water system party: _____Date: ____/___/____
Name of authorized party *(PRINT):* __Karen Johnson__ *Title:* __Board of Selectmen Chair
Telephone #: __781-741-1400__ Mobile/cell #:_____ Fax #:_____ Email Address:_____

[1]During any monitoring period no MassDEP approved sample site shall be sampled more than once without prior written approval from MassDEP."

[2] *Kitchen;* [3]*Bathroom;* [4]*The attached list of schools and daycare centers will be used to provide four samples per monitoring period until all facilities are sampled or as otherwise determined by MassDEP.*

* Alternative Sites *(These sites are not included in the samples required and must be approved by MassDEP prior to use in any sample round.)*

For MassDEP use: Approved Deficient/Disapproved
Comments: _____
MassDEP staff Name: _____ Date: _____

ATTACHMENT K

Emergency Response Plan

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Emergency Response Plan
Hingham Water System