



TOWN OF WAYLAND DEPARTMENT of PUBLIC WORKS

41 COCHITUATE ROAD
WAYLAND, MASSACHUSETTS 01778

July 21, 2010

James J. Dillon
Drinking Water Program
Northeast Regional Office

Re: Wayland, Ma NON-NE-10-5D058

Dear Mr. Dillon,

This letter is to provide you with a plan of action to address the Violations, Deficiencies and Recommendations listed in Table A,B and C of the 2010 Sanitary Survey Report.

TABLE (A) Violations

1. **Cross Connection:** At the time of the Sanitary Survey, the Town of Wayland had already placed an RFQ for the Backflow Testing and Re-Surveying of the Town.

The Town of Wayland has issued the contract to White Water Inc. They are expected to be finished with the first round of backflow testing in July. Then they will begin the process of Re-Surveying the Town for Cross Connections. Please see attached letter from White Water for details.

2. **Reeves Hill Tank:** The Water Division is currently removing trees from the perimeter of both storage tanks in preparation for installation of Security Fencing. We expect to place an RFQ within the next few weeks, and will have the fence installed by the September 17th deadline.
3. **Baldwin Pond Well 1A:** The hatch that was provided with the vault did not have a hasp for the placement of a lock. The Water Division has contacted a welder to install the necessary locking restraints. The expected completion date is August 30, 2010.
4. **High School Zone 1:** The DPW has asked the School Department to remove the Storage containers from the Zone 1 of the Happy Hollow Wells. The Storage Containers will be removed by August 30, 2010.

5. **Chemical Safety Control Rules:** Tata & Howard Inc. has submitted a request for a 12 month time frame extension to complete the necessary upgrades at the Well Sites. Please See attached letter.
6. **Emergency Power:** The Water Division has awarded the bid to provide a 125Kw Portable Generator to FM Generator. The generator is currently being built, with an expected delivery date in September of 2010.

TABLE (B) Deficiencies

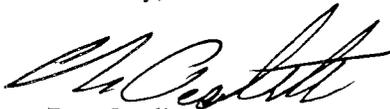
1. **Emergency Contact Sheet:** See attached sheet.
2. **Meadowview Well Re-classification:** The Town of Wayland agrees that the best course of action for the Meadowview Well is to place it into "inactive" status. The Town will request re-activation of the well when the Happy Hollow Treatment Facility is built.
3. **Groundwater Rule:** See attached 4-Log removal Form D for Baldwin Pond Filtration Facility.
4. **Staffing Plan:** See attached Staffing Plan.
5. **Groundwater Rule:** The Water Division field verified all draw down tubes and well vents are protected with screens and or plugs.

Table (C) Recommendations

1. **"Dead man" switches:** All stations will be outfitted with dead man switches as part of the Chemical Safety Upgrades.
2. **Sample Taps:** The Water Division is currently updating all raw and treated sample taps with new taps to lessen the chance of contamination.
3. **Operator Certification Grade:** The Water Division always encourages its operators to obtain higher licenses'
4. **First Responder Training:** The Wayland Fire Department conducts quarterly training on all hazards, located within the Filtration Plant.
5. **Operator Safety:** The Water Division will work with its consultants to develop written procedures for all topics listed.
6. **Chemical Eye Wash Stations:** The eye wash stations currently are alarmed to the SCADA system. We will work with our Controls Company to find a way to get the signal to the Fire Alarm panel.
7. **Interconnections:** The Town of Wayland is currently working to verify all interconnections and implementing agreements with the systems for their use.

8. **Valve Exercising Program:** The Town of Wayland agrees that a valve exercising program is in the best interest of the Town. This program needs to be implemented in conjunction with a valve replacement program.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Ouellette". The signature is fluid and cursive, with a large initial "D" and "O".

Don Ouellette
DPW Director
Town of Wayland

SECTION 5:

GENERAL COMMENTS:

The Wayland Water Department ("Wayland") supplies potable water to approximately 13,849 individuals through approximately 4,961 service connections. Wayland is classified as a 2-D system for distribution & the water treatment facilities are rated as 2-T facilities including the new Baldwin Pond Water Treatment Facility. Wayland is adequately staffed. Wayland collects a total of fifteen (15) samples in their distribution system for total coliform bacteria every month.

Wayland provides potable water through the following eight- (8) groundwater wells:

Well	Approved daily pump volume (MGD)	Status	Within Zone I-400 feet for all wells
Happy Hollow 1	0.648	A	Parking lot for HS
Happy Hollow 2	0.763	A	Parking lot for HS
Baldwin Pond 1A	*	A	Water Treatment Plant
Baldwin Pond 2	*	A	Water Treatment Plant
Baldwin Pond 3	*	A	Adjacent homes
Campbell	0.6	A	No prohibited activities
Chamberlain	0.828	A	Farming activities
Meadowview	0.54	I	Portion of Meadowview Road

- = 1.5 MGD for these three wells combined
- A = active
- I = inactive

Baldwin Pond Water Filtration Facility

The new Baldwin Pond Water Filtration Facility treats water from Baldwin Pond wells 1A, 2, and 3. All the wells have new submersible pumps and VFDs. All the treatments chemicals and equipment [sodium fluoride, sodium hypochlorite, and sodium fluoride] has been removed from Well 2 and Well 3.

The water from the three (3) wells is pumped into the treatment plant which is capable of treating 1.5 million gallons of water per day (MGD). The water is dosed with ozone as well as poly aluminum chloride. There also are injection ports for sodium hypochlorite (15 % solution) and potassium hydroxide. There are two (2) ozone generators with separate destruct units which generate ozone using dry air. Each ozone generator is rated at 50 pounds per day. The ozone is primarily being used to oxidize iron, manganese, as well as a small concentration of arsenic.

The water next enters the ozone contact chamber. The ozone contact chamber is a baffled unit approximately twenty-five (25) feet by approximately twenty-five (25) feet with an operating depth of approximately 6.4 feet. There is an ozone sensor located approximately in the center of the contact chamber as well as a second ozone sensor located at the pre-filter. The ozone contact chamber with an operating volume of 23,940 gallons and a maximum pumping rate of 1,042 gallons per minute (gpm), and an assigned baffling factor of 0.8 provides approximately eighteen (18) minutes of contact time. After the ozone contact chamber Wayland has the capacity for "post" injection of poly aluminum chlorine and sodium bisulfite.

Between the ozone contact chamber and the 500 micron pre-filter there are at least one (1) injection port for sodium bisulfite as well as an ozone sensor. The sodium bisulfite is used to destroy any ozone due to the fact that the membrane filters are not compatible with ozone. The typical ozone concentration at the center of the contact chamber as measured by an ozone sensor is 0.02 ppm ozone to 0.05 ppm ozone. **Please note that the membranes are compatible with sodium hypochlorite.**

The water is now filtered. The filtration system consists of two (2) trains of Koch membrane filters, Model HF-56. Each train can hold 56 ten (10) inch four (4) feet long filters. Currently there are only 44 membrane filter cartridge units installed per train. The design flux is approximately forty (40) gallons per minute per square foot of membrane. The rejection percentage of water is approximately 5 %. Each membrane train is equipped with on-line turbidimeters.

The water then enters the clearwell which is twenty (20) feet by approximately one-hundred and fifteen (115) feet with an operational depth of six (6) feet. The clearwell exhibits superior baffling and the Department assigns the clearwell a baffling factor of 0.7. The water treatment plant with a maximum capacity of 1.5 MGD or 1,042 gallons per minute (gpm) and a clearwell volume of 100,531 gallons has a contact time of sixty-eight (68) minutes. The contact time is equal to:

$(100,531 \text{ gallons} * 1 \text{ minute}/1042 \text{ gallons}) * 0.7 = 68 \text{ minutes.}$

The water temperature is usually 55 degrees F and therefore the required contact time for 4-log inactivation of viruses is 4.8 (min*mg)/l. Wayland with 68 minutes of contact time and a minimum free chlorine residual of 0.3 mg/l has 20 (min*mg)/l of 4-log inactivation of viruses. Compliance with the Groundwater Rule is based on the actual or computed CT being equal to or greater than the required CT at a particular temperature at a water pH between 6.0 and 9.0. Wayland's calculated or actual CT was 20 (min*mg)/l while the required CT at 12 degrees C was 4.8 (min*mg)/l. Based on this data, the Department recommends that Wayland submit Form D to obtain 4-log inactivation of viruses for the Baldwin Pond wells.

The pH leaving the water filtration facility was 8.0; the free chlorine residual varies from 0.3 ppm to 0.6 ppm; and the fluoride concentration is approximately 1.0 ppm. The incoming iron concentration varies from 0.03 ppm to 0.05 ppm and the finished water iron concentration is 0 ppm. The incoming manganese concentration varies from 0.088 ppm to 0.096 ppm and the finished water iron concentration is approximately 0.026 ppm.

Wayland Wells

Of the eight (8) wells, three (3) are now being treated at the new water filtration facility; one (1) is off-line due to high concentrations of iron and manganese; and the other four (4) wells pump directly into the water distribution system.

The wells that pump directly into the distribution system are: Happy Hollow 1 & 2; Chamberlain; and Campbell. These four (4) are disinfected with sodium hypochlorite; potassium hydroxide is injected for pH and corrosion control; and sodium fluoride is injected for dental caries prevention.

General

There are two (2) water storage tanks located on Reeves Hill. One is a one (1) million ground-level concrete tank and the other is a 0.5 million gallon ground-level steel tank. Both tanks are scheduled to be inspected this year. The steel tank is in need of being painted. Due to recent vandalism as well as security concerns, the Department is now requiring that the tanks be enclosed in a security fence.

Wayland flushes the distribution system in the spring and fall via a uni-directional plan. There is no valve exercising plan. There are still a large number of dead ends in the distribution. During new housing development construction, Wayland attempts to loop when ever possible. Wayland believes that there are lead service connections or lead goose necks left in the distribution system. Wayland will conduct some main replacement this year as well as re-line a water main that carries water from the new water filtration facility to the center of town located at Route 20.

During the survey, the Department tried to verify the water filtration facility's alarms but could not do so because a problem with the SCADA system. This problem must be corrected as soon as possible.

SANITARY SURVEY FINDINGS SUMMARY

Table A – Violations

T/F/M	Citation	TABLE A - CORRECTIVE ACTION	Action Due Date	Date Complete by PWS
1. M	<p>310 CMR 22.22(3)(h): Ensuring that all double check valve assemblies and reduced pressure backflow preventer devices are inspected and tested in accordance with the public water system program as approved by the Department and as specified at 310 CMR 22.22(13).</p> <p>310 CMR 22.22(13)(d): The public water system is responsible to ensure that each reduced pressure backflow preventer will be inspected semiannually.... As provided for in 310 CMR 22.22(3)(b). Also each double check valve assembly shall be tested annually.</p>	<p>During the calendar 2009, Wayland conduct only one (1) round of backflow device testing.</p> <p>Wayland shall submit to the Department:</p> <ol style="list-style-type: none"> 1. A list of all permitted reduced pressure backflow preventers install in its water distribution system. 2. A list of all double check valve assemblies installed in its water distribution system. 3. A schedule for testing all devices this year. 4. A plan and schedule for re-surveying Wayland. 5. The names and license numbers of all testers and surveyors who conduct the work. 	August 5, 2010	
2. M/T	<p>310 CMR 22.04(5): Existing Public Water Systems. The Department may require any existing public water system to demonstrate its compliance with 310 CMR 22.00, including but not limited to 310 CMR 22.04(1) and the Department's Guidelines and Policies for Public Water System, at the time of the sanitary survey conducted pursuant to 310 CMR 22.01(12) or as otherwise directed by the Department.</p> <p>Chapter 8 of the Department's Guidelines and Policies for Public Water System Finished Water Storage states "Fencing, locks on access manholes, and other necessary precautions shall be provided to prevent trespassing, vandalism, and sabotage."</p>	<p>By September 17, 2010, install security fences surrounding the Reeves Hill water storage tanks.</p>	August 5, 2010	

3.	T	<p>310 CMR 22.04(5): Existing Public Water Systems. The Department may require any existing public water system to demonstrate its compliance with 310 CMR 22.00, including but not limited to 310 CMR 22.04(1) and the Department's Guidelines and Policies for Public Water System, at the time of the sanitary survey conducted pursuant to 310 CMR 22.01(12) or as otherwise directed by the Department.</p> <p>Chapter 8 of the Department's Guidelines and Policies for Public Water System Finished Water Storage states "Fencing, locks on access manholes, and other necessary precautions shall be provided to prevent trespassing, vandalism, and sabotage."</p>	<p>Install a lock on the access for Baldwin Pond Well 1A.</p>	August 5, 2010
4.	T/M	<p>310 CMR 22.21(3)(b): "Current and future land uses within the Zone 1 shall be limited to those land uses directly related to the provision of the public water system...."</p>	<p>Remove the storage trailers within the Zone 1 at the Happy Hollow wells.</p> <p><i>close 5/30/10 p</i></p>	August 5, 2010
5.	T/M	<p>310 CMR 22.04(5): Existing Public Water Systems. The Department may require any existing public water system to demonstrate its compliance with 310 CMR 22.00, including but not limited to 310 CMR 22.04(1) and the Department's Guidelines and Policies for Public Water System, at the time of the sanitary survey conducted pursuant to 310 CMR 22.01(12) or as otherwise directed by the Department.</p> <p>The Department's Chemical Safety Control requirements as described in Chapter 6 of the Department's Guidelines and Policies for Public Water System require specific controls on the critical chemicals (sodium hypochlorite and potassium hydroxide) to prevent/control an overfeed. See Attachment.</p>	<p>Currently the pH and disinfection equipment at all active well is in non-compliance with the Chemical Safety Control rules and will not be by the require deadline of June 30, 2010.</p> <p>Submit a schedule for bringing the wells into compliance.</p>	<p>August 5, 2010</p> <p><i>New date</i></p> <p><i>June 30</i></p> <p><i>2011</i></p>

6. T	310 CMR 22.04(5): Existing Public Water Systems. The Department may require any existing public water system to demonstrate its compliance with 310 CMR 22.00, including but not limited to 310 CMR 22.04(1) and the Department's Guidelines and Policies for Public Water System, at the time of the sanitary survey conducted pursuant to 310 CMR 22.01(12) or as otherwise directed by the Department.	Wayland needs to submit a plan and schedule for providing emergency power at its well stations to meet peak summer demand as needed to meet the requirements of the Department's Guidelines & Policies or provide written documentation how peak demand can be met with the wells. It is the Department's understand that the new water treatment can provide a maximum of 1.5 MGD but the peak summer demand can be 2.0 MGD.	August 5, 2010
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Table B - Deficiencies

MassDEP has made note of several items that do not reflect good water system practice and, if left unresolved, could lead to problems that are more serious. Some of these items may be potential violations, and are summarized below. Due to the item's severity or importance MassDEP has included a required course of action with a compliance date.

T/I/ M	Citation	TABLE B - CORRECTIVE ACTION	Action Due Date	Date Complete by PWS
1. T	Guidelines, Chapter 8: Posted in a readily visible part of the pump house shall be a contingency planning sheet containing directions, contacts, and phone numbers of the proper persons to contact in case of emergency.	Wayland shall update the notification sheet with current phone numbers as required by the Guidelines at all their facilities. Attached is a Department list of water supply personnel.	As soon as possible. <i>done JP</i>	
2. M	310 CMR 22.02: Active Source means an approved source(s), monitored and maintained to meet 310 CMR 22.00 and used for primary or backup purposes to meet consumer demands as necessary.	MassDEP will re-classify the Meadow View well as an "Inactive" source, unless Wayland provides an outline of how it intends to make the source an active source as defined by the Regulations under 310 CMR 22.02.	August 5, 2010	
3. T	Groundwater Rule	Submit form D to the Department to obtain 4-log viral certification for the Baldwin Pond wells which are now being treated at the new Baldwin Pond Water Filtration facility.	As soon as possible. <i>done JP</i>	

4.	M	310 CMR 22.11B	Submit a revised staffing plan. Please identify the primary treatment operator and the primary distribution operator.	August 5, 2010	<i>closed</i>
5.	T	Groundwater Rule	Field verify that all draw down tubes, well vents, etc. are properly protected with screens, plugs, etc. to prevent both chemical, microbiological, etc. contaminants from entering the well.	August 5, 2010	

Table C - Recommendations

MassDEP has made note of items with a recommended course of action, summarized in Table C. It is strongly encouraged to follow the recommended actions in order to improve ability to provide a safe supply of drinking water. Failure to do so could eventually lead to violations of the regulations.

T/F/M	Citation	TABLE C – RECOMMENDATIONS
1.	T	Install dead man switches on all chemical transfer pumps.
2.	T	Wayland should ensure that each sample tap used for collecting raw water samples is a smooth, nosed sample tap meeting the recommendations of the Guidelines so that the samples less likely to produce false-positive results.
3.	T/M	The Department recommends that any operator currently holding a 1-T license up grade their license to 2-T in the event that one or more of the Baldwin Pond wells is determined to be under the direct influence of surface water resulting in the classification of the Baldwin Pond Water Filtration facility being upgraded from 2-T to 3-T.
4.	M	The Department recommends that the Wayland Fire Department and Police Department acting as first responders be aware of the layout of the water treatment facility as well as all the hazards both chemical and electrical within the facility.
5.	T	Develop a written safety policy including such elements of trench safety, chemical handling procedures, road safety, electrical hazards, lock out procedures, etc.
6.	T	Alarm all safety eye wash stations and safety showers if this has not yet been done and tie the alarms into the Wayland Fire Department to summon help especially on weekends and holidays when there is minimal staffing.
7.	T	Verify field location of all interconnections and exercise yearly. Establish written policies with the other town on their emergency use.
8.	T	Install dead man switches on all chemical transfer pumps.
9.	T	Institute a valve exercising program.

System Staffing and Comprehensive Operations Plan

System Name: Wayland Water Division City/Town: Wayland PWS ID#: 3315000

System Classification: COM NTNC NC (Check one)

Contract Operator(s) Licensed Staff No Certified Operator (Check one)

Operator Name: <u>Don Millette</u>	Superintendent*	Phone# <u>508-958-2806</u>	Grade/Cert# <u>3-T #11897</u>
Operator Name: <u>Mike Hatch</u>	Treatment Plant Manager*	Phone# <u>508-808-5044</u>	Grade/Cert# <u>3-T #11736</u>
Operator Name: <u>Brian Vaudreuil</u>	Working Foreman	Phone# <u>508-958-2805</u>	Grade/Cert# <u>1-T #7229</u>
Operator Name: <u>Paul Hatfield</u>	Water Craftsman 3	Phone# <u>508-958-2803</u>	Grade/Cert# <u>2-T #7078</u>
Operator Name: <u>Manny Pacheco</u>	Water Craftsman 2	Phone# <u>508-397-7598</u>	Grade/Cert# <u>2-T #22555</u>
Operator Name: <u>Nick Iarussi</u>	Water Craftsman 1	Phone# <u>508-328-3443</u>	Grade/Cert# <u>1-T #22551</u>
Operator Name: <u>Richard Bushey</u>	Water Craftsman 1**	Phone# <u>774-239-1422</u>	Grade/Cert# <u>1-T OIT #22856</u>

*Water Superintendent and Treatment Plant Manager are not in the "on-call" or "weekend duty" rotations, but are available for emergencies.

** Operator has passed his exam and is currently waiting for the 1-T OIT certification to arrive in the mail. The Operator will be added into the on-call rotation as soon as he receives the license.

Give a brief description of **proposed** operating practices including the number of hours per day, week, or month that the licensed operator will be at the facility. Include the name and telephone number of the person accepted by the licensed operator who will be responsible for the system in the absence of the licensed operator. (See notes below for further information.)

The Primary Treatment Operator is Mike Hatch, Water Treatment Plant Manager.

The Baldwin Pond Water Filtration Facility will be staffed 8 hours per day, Monday – Friday. During this time the Treatment Plant Manager will perform the daily water quality sampling, preventative maintenance and operation of the Treatment Plant. The wells, tank and booster stations will be sampled and maintained by the Water Craftsman 3. The other personnel will be available to assist either the plant operator or station operator if needed.

The SCADA system is equipped with an auto dialer program to phone the on-call person to notify them if there is a problem. The on-call operator will be issued a laptop to dial in to the SCADA system to access a problem and take corrective action. If the plant shuts down, for example due to a high pH condition in the membrane filtration skids after a backwash the system is designed not to allow remote re-starts. The operator has to go to the plant to correct the problem by initiating a backwash to clear the high pH alarm, and then the system will allow the plant to be re-started. This is one of the many built-in fail safes.

On the weekends and holidays, the plant will be staffed 4 hours per day with an additional hour for visits to the other stations.

System Staffing and Comprehensive Operations Plan

System Name: Wayland Water Division City/Town: Wayland PWS ID#: 3315000

System Classification: COM NTNC NC (Check one)

Contract Operator(s) Licensed Staff No Certified Operator (Check one)

Operator Name: <u>Don Millette</u>	Superintendent*	Phone# <u>508-958-2806</u>	Grade/Cert# <u>2-D #7522</u>
Operator Name: <u>Mike Hatch</u>	Treatment Plant Manager*	Phone# <u>508-808-5044</u>	Grade/Cert# <u>4-D #11889</u>
Operator Name: <u>Brian Vaudreuil</u>	Working Foreman	Phone# <u>508-958-2805</u>	Grade/Cert# <u>2-D #11646</u>
Operator Name: <u>Paul Hatfield</u>	Water Craftsman 3	Phone# <u>508-958-2803</u>	Grade/Cert# <u>2-D #3651</u>
Operator Name: <u>Manny Pacheco</u>	Water Craftsman 2	Phone# <u>508-397-7598</u>	Grade/Cert# <u>2-D #22334</u>
Operator Name: <u>Nick Iarussi</u>	Water Craftsman 1	Phone# <u>508-328-3443</u>	Grade/Cert# <u>1-D #22090</u>
Operator Name: <u>Richard Bushey</u>	Water Craftsman 1	Phone# <u>774-239-1422</u>	Grade/Cert# <u>1-D OIT #22617</u>

*Water Superintendent and Treatment Plant Manager are not in the "on-call" or "weekend duty" rotations, but are available for emergencies.

Give a brief description of **proposed** operating practices including the number of hours per day, week, or month that the licensed operator will be at the facility. Include the name and telephone number of the person accepted by the licensed operator who will be responsible for the system in the absence of the licensed operator. (See notes below for further information.)

The Primary Distribution Operator is Brian Vaudreuil, Working Foreman.

The Primary Operator is on site 8 hours a day 5 days a week. The Town of Wayland has a Water Division employee on-call after normal hours. The on-call person rotates on a weekly basis. On the weekends and holidays, the system will be staffed 4 hours per day.

The on-call person is issued a cell phone and laptop with access to the departments SCADA system in case of emergencies.

Please note the following:

1. The primary operator must be able to respond to emergencies within one hour during those times when he or she is not present at the facility.
2. The primary operator is responsible for the operation of the system during his or her absence between scheduled visits, the person(s) affiliated with the public water system are acting under the direction of the primary operator.
3. The PWS must have the ability to detect any malfunction in the operation of the facility/system in the absence of the primary operator.

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

Date

8/24/10