

Welcome! Please confirm your attendance.*



Use the Chat feature in Microsoft Teams to type the following:

1. First and last name
2. Public water system(s) you are affiliated with



OR



If you are calling in, unmute yourself and verbally respond to prompt #1-2 above

To mute/unmute dial: *6

*Operators seeking training credit hours must confirm attendance.





2023 Seasonal System Start-up Process



April 4, 2023

Center for Drinking Water Quality

Environmental Health Division

Rhode Island Department of Health (RIDOH)

Introductions



Christina Millar

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- Revised Total Coliform Rule (RTCR) Manager
- Organic/Inorganic Chemicals Rule Manager



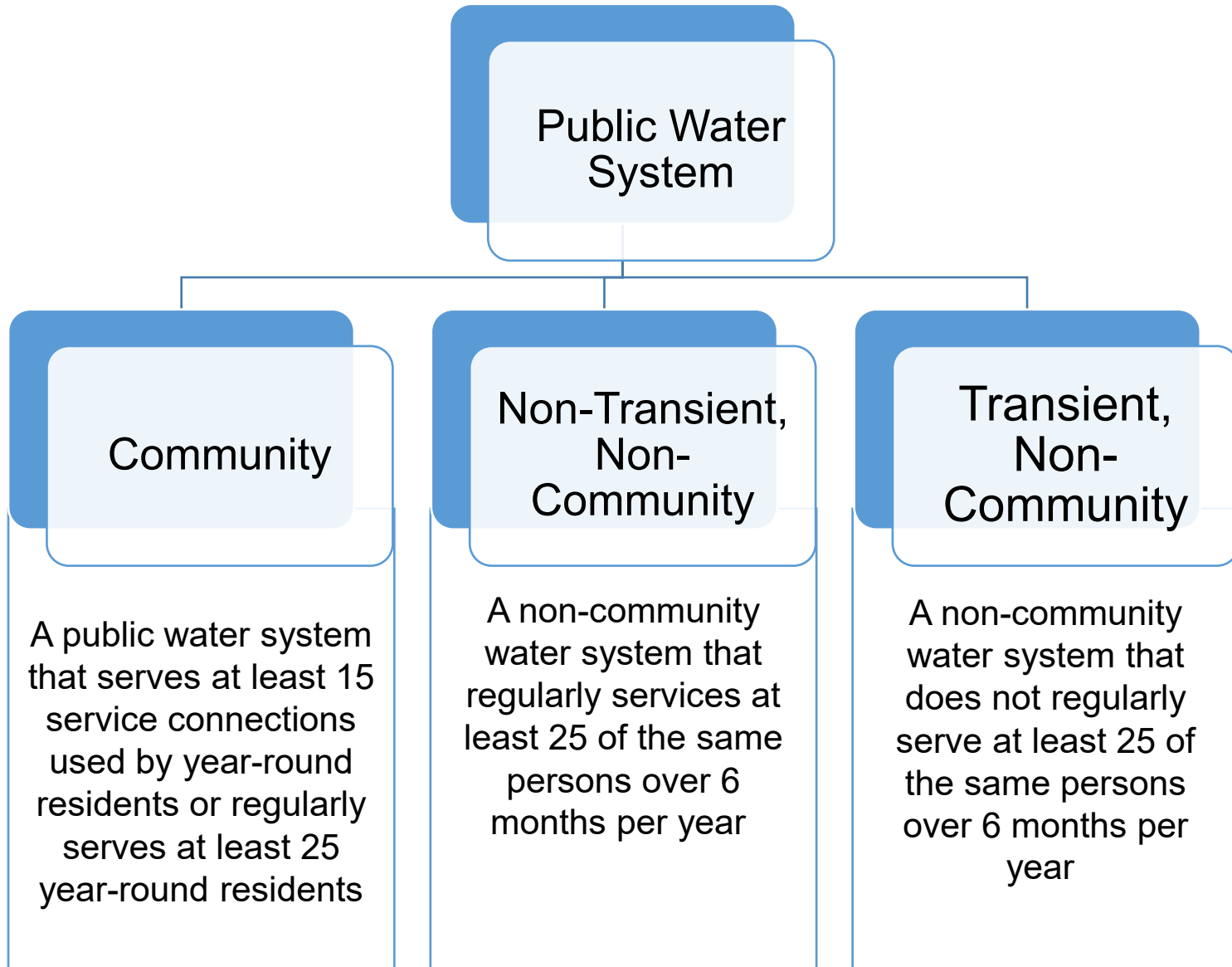
Erin O'Neill

Environmental Scientist
Center for Drinking Water Quality
RIDOH

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- Level 1 Assessments
- Technical Assistance Specialist
- Radionuclides Rule Manager

Public Water System Definitions



What is a seasonal water system?



Definition

A non-community water system that is not operated as a public water system (PWS) on a year-round basis. Seasonal water systems start up and shut down at the beginning and end of each operating season.

Types

- Fully Seasonal—a seasonal water system that dewateres the entire system during the “off season”
- Partially seasonal—a seasonal water system that dewateres only a portion of their distribution system and keeps only a small area pressurized during the “off season”



If you are a seasonal water system,
as defined in the earlier slide, are
you a public water system?

Yes!

Seasonal System versus Active Non-Operational (ANO)



Seasonal

Opens and closes routinely every year

Closure is temporary with the intent to open the following season

e.g., Campground, ice cream shop, beach pavilion

Both

Depressurizes

Does not have to complete sampling and monitoring requirements when closed/ANO

Maintains "active" license status

Requires approval from RIDOH

ANO

Closes for a prolonged, and typically unknown, period of time

Will not traditionally revert to/from ANO to active-operational (AO) on a regular basis

e.g., Restaurant, hotel, or other business closing for an indefinite time

Seasonal Start-up Procedures



Communicate with RIDOH

Follow your state-approved Seasonal Start-up Plan

Organize your resources

Ready your entire system

Disinfect and flush system

Collect start-up samples and submit Seasonal Start-up Form

Seasonal Start-up Procedures



Communicate with RIDOH

- Prior to opening, notify RIDOH if the opening /closing dates change from the previous year

Organize your resources

- Seasonal Start-up Plan
- Sampling Plan
- Well Disinfection Procedure
- Emergency contact list
- Utilize Drinking Water Watch

Ready your entire system

- Inspect well(s), storage/pressure tank(s), treatment, distribution system, sample taps, etc.
- Conduct repairs and complete outstanding corrective action(s)

Disinfect and flush system

- Chlorinate system by following RIDOH's Well Disinfection Procedure
- Flush system to achieve 0.0 mg/l chlorine residual (untreated) in the distribution system

Collect start-up samples and submit Seasonal Start-up Form

- Collect total coliform (TC) absent results and other start-up samples
- Upload TC absent results and/or include with Seasonal Start-up Form submittal before opening

Sampling Requirements



PWSs on Quarterly Monitoring:

- Sample in the first month of each quarter (“peak use” period).
- If you don’t activate your system in the first month of the quarter, you must sample in the first month you are open.
- For all subsequent quarters, sample in the first month of the quarter.

PWSs on Monthly Monitoring:

- Sample in the first month you are open.
- Remember to take your routine monthly samples in the following month and for the rest of the season.

If your system is open at any point during the month/quarter, you must sample.

Drinking Water Watch (DWW)

- Monitoring schedules are available on Drinking Water Watch health.ri.gov/waterinfo
- Pay close attention to whether you are on a quarterly or monthly routine coliform schedule.
- Remember to take all required annual well samples (for example, for nitrate, nitrite, and coliform) while the PWS is open
 - i.e., between the reported opening and closing dates

Sample Plan

If you need to update your sample plan, please reach out to us!

DOH.RIDWQ@health.ri.gov

401-222-6867



Rhode Island Department of Health
Center for Drinking Water Quality

Coliform Sampling Plan

For public water systems (PWSs) serving ≤ 1,000 persons

1. Public Water System ID#: RI9999999 Public Water System Name: Test Water System

Select type of PWS:

- Community
 Transient Non-Community (TNC) Year-Round
 Non-Transient, Non-Community (NTNC)
 TNC Fully Seasonal
 TNC Partial Seasonal

Check the box that describes the PWS:

- Groundwater with no treatment
 Groundwater with ultraviolet treatment
 Groundwater treating for secondary concerns such as taste and odor or iron removal
 Groundwater with 4-log viral disinfection
 Groundwater practicing chlorine residual maintenance

2. System Contact Name: John Smith

Phone: 401-999-9999 Email address: John.Smith@gmail.com

3. Total population served by PWS: 100 Number of service connections: 1

PWS samples once per: Month Quarter

4. Laboratory ID#: 121 Laboratory Name: RI Dept. of Health Lab

5. Sampling Site Information:

Sampling Locations	Repeat & Source Sampling Sites	Location
Primary Sampling Site (RTOR)	RPOR	Same site as Primary at left
Handwash Sink	RPOT (upstream)	Bar Sink
	RPOT (downstream)	Women's Bathroom Sink
Alternate Sampling Site (RTOR)	RPOR	Same site as Alternate at left
	RPOT (upstream)	
	RPOT (downstream)	

Raw Water Sampling Site State Facility ID (e.g., WL001)	Well Name (e.g., Well #1)	Smooth nosed tap?
WL001	Drilled Well #1 (BR) (WL001)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No

Entry Point State Facility ID (e.g., EP001)	Entry Point Location
EP001	Pump facility with storage tank (ST001)

6. Attach floor plan/map showing the Primary, Upstream, Downstream, and Raw Water (well) sampling sites.



Rhode Island Department of Health
Center for Drinking Water Quality

Coliform Sampling Plan

For public water systems (PWSs) serving ≤ 1,000 persons

The information on this completed coliform sampling plan pertains to the coliform samples collected under the Revised Total Coliform Rule and the Ground Water Rule. If any of this information changes between now and the next scheduled sanitary survey, it is the responsibility of the PWS to provide the Center for Drinking Water Quality with an updated coliform sampling plan.

7.

PWS Official's Name: John Smith

PWS Official's Role: Administrative Contact

PWS Official's Signature: John Smith, AC Date: 12/31/2022

Complete this form and submit it along with all supporting documents to Rhode Island Department of Health Center for Drinking Water Quality, 3 Capitol Hill, Room 209, Providence, RI 02908 or to DOH.RIDWQ@health.ri.gov, with PWS identification number in the subject line.

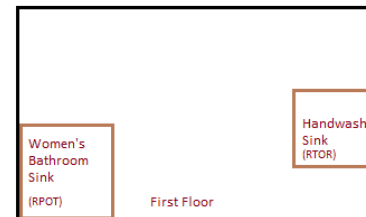
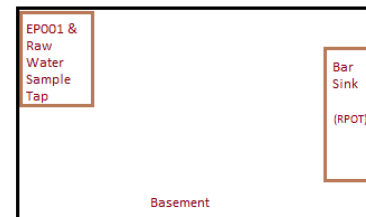
BELOW THIS LINE FOR RIDOH OFFICIAL USE ONLY

Field Inspector: _____ Date: _____

Sample Plan Reviewer: _____ Date: _____



Service Line



What if my seasonal start-up sample is total coliform (TC) present?



1. Inspect system to identify potential causes of contamination
2. Fix the issue(s)
3. Disinfect
4. Collect sample
5. Submit TC absent sample to RIDOH*



***Do NOT serve the public until a TC absent sample is received and submitted to RIDOH**

Proper Well Disinfection



RHODE ISLAND DEPARTMENT OF HEALTH CENTER FOR DRINKING WATER QUALITY

WELL DISINFECTION PROCEDURE

Follow the procedures below and save this completed checklist for reference during compliance inspections. Please read all of the steps before you begin.

Date: _____

Reason for well disinfection: _____

1. Shut off all power to well to avoid potential electrical shock. Ensure that power switches will not be inadvertently turned on. (Please refer to OSHA 29 CFR 1910.147 "lock out, tag out" procedure). Power should not be turned back on until Step 5, after the chlorine solution has been placed in the well.

Power shut off and secured

2. Refer to the attached Well Disinfection Calculators (5.25% or 8.25% available chlorine) to determine the appropriate amount of unscented liquid household bleach to introduce to the well. **DO NOT USE BLEACH SOLIDS, TABLETS, OR PELLETS.** Note: For large storage tanks, additional disinfection requirements may be necessary to achieve the desired effect. Refer to AWWA Standard C652 for guidance when disinfecting large storage tanks.

Type and amount of bleach used: _____

3. Fill a clean 5-gallon bucket approximately halfway with clean water. Slowly pour the appropriate amount of bleach for your system into half-full bucket and then carefully fill remainder with clean water. Wear appropriate personal protective equipment, including but not limited to gloves and eyewear.
4. If the well cap has the discharge pipe coming out the top of the well, well disinfection should be performed by a well professional. If the well cap is a "pitless adapter" type (the discharge pipe is underground), remove well cover/cap by removing the bolts or loosening the set screws, but be careful not to drop parts into the well. Remove any visible insects or debris found within the wellhead.

Well cover/cap and opening inspected for insects and debris.

Notes: _____

5. Pour bleach and water solution into well making sure to cover all surfaces within the wellhead and interior of the casing. Turn on the power to the pump. Spray or hose down the interior of the well with chlorinated water by attaching a hose to the nearest tap downstream, prior to any unpressurized storage reservoirs (if this is not possible, contact DWQ or a water system maintenance professional for further technical consultation). Recirculate water from the tap back into the well for approximately 15 minutes. Use caution to avoid electrical wires when applying solution to prevent corrosion of wire sheathing.

Solution introduced as noted above.

Notes: _____

Updated 01/24/2020

6. Turn off the power to the pump. Remove the hose and ensure the well cover/cap is properly secured. Turn power back on to pump. To disinfect the distribution system in addition to the well, operate the well pump until the entire distribution/piping system is full of chlorinated water from within the well. **To ensure that all potential sources of contamination are disinfected, supply chlorinated water to each plumbing fixture/faucet (cold and hot faucets, showers, outdoor spigots, etc.) until you detect an odor of chlorine in each fixture.**

Well cover/cap secured Procedures completed as above

Notes: _____

7. Allow the chlorinated water to remain in the well and piping system (if disinfecting the distribution system as well) overnight (minimum of 8 hours).

Completed Notes: _____

8. Pump the well water to waste (discharge water from outdoor faucet using hose to the ground surface AWAY from well(s), any surface water system, storm water system, garden, lawns, etc.) until no chlorine is left in the water. Next, discharge the small amount of chlorinated water left in the distribution system (water lines, faucets, other fixtures, etc.) down the appropriate drain(s) until no chlorine is left in the water. Water within plumbing fixtures must NOT be used for consumptive purposes until no chlorine is left in the water.

Use EPA-approved chlorine test strips or test kit to confirm chlorine is no longer in the discharge water from the well or distribution system.

Note: Highly chlorinated water can disrupt microbial activity within septic systems and affect waste decomposition processes. A large volume of water can be found in deep wells. Therefore, the highly chlorinated discharge water from the well should not be discharged into septic systems. If you have questions regarding disposal of chlorinated water into a septic system, contact RIDEM's OWTS Program for more information. Chlorinated water should not be discharged to surface water or a storm water system. If either are nearby, contact RIDEM's RIPDES Program to obtain discharge requirements.

Completed Notes: _____

9. After allowing time for conditions to stabilize, and ensuring a zero-chlorine residual, collect the number of coliform samples required by RIDOH or arrange for sample collection with RIDOH or a commercial laboratory licensed by the State of Rhode Island for water testing to ensure the disinfection procedure was successful.

Completed Notes: _____

Warning: Bleach used in this disinfection process must be flushed thoroughly from all service lines. This procedure is for shock disinfection only and should not be used on a regular basis. Bleach contains chlorine and is harmful to organisms living in water and soil. Human exposure to strong bleach solutions (over 4 ppm chlorine) may cause severe irritation to eyes and skin. Bleach solutions over 4 ppm chlorine can be harmful if swallowed. Please use appropriate protection and precautions when handling bleach and notify customers who may be receiving highly chlorinated water before the system is flushed. For additional assistance, contact the Center for Drinking Water Quality at 401-222-6867.

For more detailed guidance, refer to Minnesota Department of Health's Well Disinfection webpage <https://www.health.state.mn.us/communities/environment/water/wells/waterquality/disinfection.html>.

Updated 01/24/2020

Well Disinfection Calculator



Well Disinfection Calculator

Desired final ppm (mg/L) of free chlorine 50
 Concentration of chlorine bleach 0.0525

Ounces of 5.25 % Chlorine Bleach to achieve 50 ppm

Diameter of Well in Inches

Depth of Well in Feet	Diameter of Well in Inches												
	4	6	8	10	12	16	20	24	28	32	36	42	48
5	0.4	1	2	2	4	6	10	14	19	25	32	44	57
10	1	2	3	5	7	13	20	29	39	51	64	88	115
15	1	3	5	7	11	19	30	43	58	76	97	132	172
20	2	4	6	10	14	25	40	57					
30	2	5	10	15	21	38	60	86					
40	3	7	13	20	29	51	80	115					
60	5	11	19	30	43	76							
80	6	14	25	40	57	102							
100	8	18	32	50	72	127							
150	12	27	48	75	107	191							

Conversion:
 1 gal = 128 ounces
 1 quart = 32 ounces
 1 pint = 16 ounces
 1 cup = 8 ounces

For a deeper well, sum the ounces as appropriate (e.g. for 6" diam 200' well, 18 oz + 18 oz = 36 oz)



Well Disinfection Calculator

Desired final ppm (mg/L) of free chlorine 50
 Concentration of chlorine bleach 0.0825

Ounces of 8.25 % Chlorine Bleach to achieve 50 ppm

Diameter of Well in Inches

Depth of Well in Feet	Diameter of Well in Inches												
	4	6	8	10	12	16	20	24	28	32	36	42	48
5	0.3	1	1	2	2	4	6	9	12	16	21	28	36
10	1	1	2	3	5	8	13	18	25	32	41	56	73
15	1	2	3	5	7	12	19	27	37	49	62	84	109
20	1	2	4	6	9	16	25	36					
30	2	3	6	9	14	24	38	55					
40	2	5	8	13	18	32	51	73					
60	3	7	12	19	27	49							
80	4	9	16	25	36	65							
100	5	11	20	32	46	81							
150	8	17	30	47	68	122							

Conversion:
 1 gal = 128 ounces
 1 quart = 32 ounces
 1 pint = 16 ounces
 1 cup = 8 ounces

For a deeper well, sum the ounces as appropriate (e.g. for 6" diam 200' well, 11 oz + 11 oz = 22 oz)

Seasonal Shutdown Procedures and Best Practices



- Collect final sample in the required monitoring period
- Perform final inspection of water system
- Complete outstanding corrective action(s)
- Conduct necessary repairs/system improvements
- Ensure equipment is in good condition
- Depressurize
- Pump water to waste
- Secure building/pump facility

As a reminder, you are required to sample within the last month/quarter you are open. e.g., if you close on November 1, 2023, you must collect a November 2023 sample.



What forms does the system submit to RIDOH to ensure compliance?



New seasonal water systems

- Seasonal Start-up Plan for approval

All seasonal water systems

- Seasonal Start-up Form
- Certified analytical results

Seasonal Start-up Form Components



Center for Drinking Water Quality
Seasonal Public Water System
Seasonal Start-Up Form

You cannot open your system until you send Rhode Island Department of Health (RIDOH) the completed *Seasonal Start-Up Form* and documentation of a test sample (contact your lab for assistance) proving no coliform is present in your system.

Reminder: You must notify RIDOH in writing if your seasonal start-up date has changed from last year. Unless notified otherwise, RIDOH will assume your opening date will occur on the same day as the previous year. This notification must occur **before** the assumed 2023 opening date and before serving water to the public, including staff and workers. For example, if you previously opened on May 15 and your planned 2023 opening date is different, you must notify RIDOH of the new date before May 15 and before the 2023 opening date.

Instructions for the *Seasonal Start-Up Form*:

- **Follow the procedures** in your RIDOH-approved *Seasonal Start-Up Plan*.
- **Complete the form.** It confirms that the approved *Seasonal Start-Up Plan* was followed and the system has been tested for coliform bacteria.
- **Include documentation of system's test sample.** This proves that coliform bacteria are not present in the system you plan to open. You can contact your lab for official documentation (either laboratory report or data upload).
- **Send this form and documentation of sample results to RIDOH before you open or serve the public:**
Email: DOH.RIDWQ@health.ri.gov
Fax: 401-222-6953
Mail: RIDOH – Center for Drinking Water Quality, 3 Capitol Hill, Room 209, Providence, RI 02908

IMPORTANT: You must submit this form each year.

Enter Public Water System (PWS) information.

PWS Name:	PWS ID#:
-----------	----------

Confirm opening and closing dates. You must notify RIDOH if your opening date changed since last year (see 'Reminder' above). If you forgot last year's opening date, you can find the date in the Seasonal Start-Up email.

2023 opening date: ___/___/2023 (If the system is partially seasonal, provide the date of first use for the seasonal part of the system.)

2023 closing (de-watering) date: ___/___/2023 (Provide the date you expect to de-water the fully seasonal or seasonal part of your water system.)

Turn over to complete form on back. 1

No Form A or Form B,
only one form submittal



Center for Drinking Water Quality
Seasonal Public Water System
Seasonal Start-Up Form

Confirmation of no coliform bacteria in system.

Do you certify that you have obtained a 2023 start-up microbiological sample documenting that coliform bacteria are not present in the water system? **Attach laboratory report or have the laboratory electronically upload results via the Compliance Monitoring Data Portal (CMDP) before submitting this form.**

Yes No

Confirmation that the water system followed start-up procedures.

Are you a PWS official (administrative contact, designated operator, owner) for this water system, and do you certify that in 2023 you have followed the RIDOH-approved *Seasonal Start-Up Plan*?

Yes No

First Name: _____ Initial: _____ Last Name: _____

Signature: _____ Date: ___/___/___



Center for Drinking Water Quality
Seasonal Public Water System

Seasonal Start-Up Form

You cannot open your system until you send Rhode Island Department of Health (RIDOH) the completed *Seasonal Start-Up Form* and documentation of a test sample (contact your lab for assistance) proving no coliform is present in your system.

Reminder: You must notify RIDOH in writing if your seasonal start-up date has changed from last year. Unless notified otherwise, RIDOH will assume your opening date will occur on the same day as the previous year. This notification must occur **before** the assumed 2023 opening date and before serving water to the public, including staff and workers. For example, if you previously opened on May 15 and your planned 2023 opening date is different, you must notify RIDOH of the new date before May 15 and before the 2023 opening date.

Instructions for the *Seasonal Start-Up Form*:

- **Follow the procedures** in your RIDOH-approved *Seasonal Start-Up Plan*.
- **Complete the form.** It confirms that the approved *Seasonal Start-Up Plan* was followed and the system has been tested for coliform bacteria.
- **Include documentation of system's test sample.** This proves that coliform bacteria are not present in the system you plan to open. You can contact your lab for official documentation (either laboratory report or data upload).
- **Send this form and documentation of sample results to RIDOH before you open or serve the public:**
Email: DOH.RIDWQ@health.ri.gov
Fax: 401-222-6953
Mail: RIDOH – Center for Drinking Water Quality, 3 Capitol Hill, Room 209, Providence, RI 02908

IMPORTANT: You must submit this form each year.

Enter Public Water System (PWS) information.

PWS Name:	PWS ID#:
-----------	----------

Confirm opening and closing dates. You must notify RIDOH if your opening date changed since last year (see 'Reminder' above). If you forgot last year's opening date, you can find the date in the Seasonal Start-Up email.

2023 opening date: ___/___/2023 (If the system is partially seasonal, provide the date of first use for the seasonal part of the system.)

2023 closing (de-watering) date: ___/___/2023 (Provide the date you expect to de-water the fully seasonal or seasonal part of your water system.)

Turn over to complete form on back.

Important: RIDOH will assume your opening date is the same as the previous year, unless told otherwise.

Important: You must notify RIDOH if your start-up date changed from last year before the assumed 2023 opening date and before serving the public.

Instructions

PWS information


Report opening and closing dates

Comparable to previous Form A

Comparable
to previous
Form B

Confirm a bacteria
free system

Confirm you
followed start-up
procedures

	Center for Drinking Water Quality Seasonal Public Water System	
Seasonal Start-Up Form		
Confirmation of no coliform bacteria in system.		
Do you certify that you have obtained a 2023 start-up microbiological sample documenting that coliform bacteria are not present in the water system? Attach laboratory report or have the laboratory electronically upload results via the Compliance Monitoring Data Portal (CMDP) before submitting this form.		
<input type="checkbox"/> Yes <input type="checkbox"/> No		
Confirmation that the water system followed start-up procedures.		
Are you a PWS official (administrative contact, designated operator, owner) for this water system, and do you certify that in 2023 you have followed the RIDOH-approved <i>Seasonal Start-up Plan</i> ?		
<input type="checkbox"/> Yes <input type="checkbox"/> No		
First Name: <input type="text"/>	Initial: <input type="text"/>	Last Name: <input type="text"/>
Signature: <input type="text"/>	Date: <input type="text"/> / <input type="text"/> / <input type="text"/>	

What do you mean by "opening" and "closing date?"

- *Opening date* = the date you begin providing water to the public
- *Closing date* = the date your system de-waters and depressurizes for the season
 - A system is still considered open if staff and workers are present and could access the water.

How do I submit the certification of results?

- *Method 1* Email RIDOH a copy of your certified total coliform lab results with your Seasonal Start-up Form submittal
- *Method 2* Submit results electronically by having your certified laboratory upload results to CMDP *prior* to the opening date

FAQ (cont.)



What if I need to postpone my opening date?

- The PWS must request an extension to RIDOH in writing, prior to the previous year's reported opening date.

What if I need to change my closing date?

- The PWS must notify RIDOH in writing, via email, prior to the current closing date RIDOH has on file.



FAQ (cont.)



Why is it important to follow seasonal start-up procedures?

It is a federal requirement!



Consequences:

- Violations
- Associated enforcement actions
- Total coliform present sample result(s) causing:
 - Level 1 & 2 Assessments
 - Increased monitoring

RIDOH Small System Technical Assistance

- Erin O'Neill, Env. Scientist
Erin.Oneill@health.ri.gov
- For help over the phone, video call, in-person, site visit, etc.

Summary



- Existing seasonal water systems:
 - Submittal Requirements:
 - Submit Seasonal Start-up Form to RIDOH prior to opening for the season
 - Include the certification of analysis for your total coliform absent sample(s) or have the lab upload the results to RIDOH
 - Follow your approved Seasonal Start-up Plan
 - Perform a thorough inspection and disinfection of your water system prior to opening
 - If your opening date has changed from last year, send an email to DOH.RIDWQ@health.ri.gov and/or submit Page 1 of the Seasonal Start-up Form
 - Note: You must do this before the assumed 2023 opening date and before serving water to the public, including staff and workers.
- New seasonal water systems:
 - You must submit your Seasonal Start-up Plan and receive approval before you can follow the steps above



Questions?



Center for Drinking Water Quality

Tel: 401-222-6867

Fax: 401-222-6953

Email: DOH.RIDWQ@health.ri.gov

**Address: 3 Capitol Hill, Room 209
Providence, RI 02908**