

# Wastewater Systems Effluent Regulations:

## Sample Guidance Toolkit



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

Canada

Cat. No.: En14-435/2021E-PDF  
ISBN: 978-0-660-37325-6  
EC8293

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## **Wastewater Systems Effluent Regulations: Sample Guidance Toolkit**

### **ERRATUM**

The following change has been made to page 5:

You have the option to request a single or multiple concentration test, with or without pH stabilization.

### **FOR ADDITIONAL INFORMATION**

Visit the Wastewater webpage at: [Canada.ca/wastewater](https://canada.ca/wastewater)

If you have questions or concerns, please contact the Wastewater Program at [ec.eaux-usees-wastewater.ec@canada.ca](mailto:ec.eaux-usees-wastewater.ec@canada.ca)

### **DISCLAIMER**

This information does not in any way supersede or modify the *Wastewater Systems Effluent Regulations*, or offer any legal interpretation of those regulations. Where there are any inconsistencies between this information and the regulations, the regulations take precedence. A copy of the regulations is available at the following website: <https://laws-lois.justice.gc.ca/PDF/SOR-2012-139.pdf>.

# Checklists for Wastewater Sampling

## Before Sampling:

- ☐ At least one month before you plan to take the sample, request a sampling kit from the lab.
- ☐ It is good practice to order at least 3 sample kits to have onsite as back up and for future sampling periods.
- ☐ Schedule the courier to come pick up samples the same day as sampling. Avoid shipping samples on a Friday or during the weekend if possible.

## During Sampling:

- ☐ Wear all the required PPE (disposable gloves, protective glasses, long sleeves, etc.) and follow safety protocol.
- ☐ On each sampling bottle, write the same Sample ID (e.g. Lagoon Discharge), your name, and the date and time samples are taken.
- ☐ Sample at the final discharge point of the wastewater system (the point where you can no longer control the quality of the effluent being deposited).
- ☐ If a container is being used to collect and pour the effluent sample into the sampling bottles, use a clean container that has been triple rinsed.
- ☐ If using a container to collect the effluent sample, ensure the effluent is well mixed before pouring into the sampling bottles.
- ☐ If sampling from a valve, purge the line free of debris before sampling.
- ☐ Fill bottles to the recommended line identified on the bottle. If no line is identified, fill to the neck of the bottle.
- ☐ It is recommended to take a picture of the samples to have visual proof in the event there is an issue when the sample is analyzed.
- ☐ It is recommended to take notes or photos about the weather and observations about your sampling point such as strong winds, heavy rain or snow, any equipment not working, algae growing etc.



## After Sampling:

- ☐ Put sample bottles in a fridge as soon as possible, ideally immediately after sample collection and keep refrigerated until they are shipped. **Do not freeze.**
- ☐ Fill out the chain of custody form sent from the lab (there is an example of a completed form to refer to in this package). Put the chain of custody form in a zip lock bag and seal.
- ☐ Pack the sample bottles and chain of custody form in the cooler with ice or freezer packs, make sure they are secure for transport, and send to lab via courier.
- ☐ If being sent by airplane, **notify the lab** to pick up the samples at the airport.

### Supply Checklist

- ☐ Sample bottles
- ☐ Ice or freezer packs
- ☐ Cooler
- ☐ Chain of Custody (COC) form
- ☐ Gloves
- ☐ Protective glasses
- ☐ Pen (for writing on COC)
- ☐ Clipboard
- ☐ Zip lock bag
- ☐ Permanent marker  
(for labelling bottles)
- ☐ Packing tape
- ☐ Plastic Materials to wrap bottles  
(i.e. bags or bubble wrap)
- ☐ Container to collect effluent  
sample (optional)



# In your sample kit: The bottles and their purpose

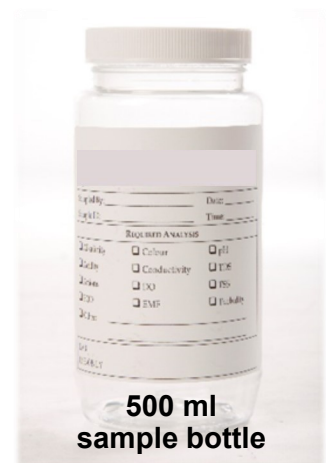
## Important Notes



- Samples should be shipped the same day they are taken or as soon as possible after, and kept cold between 1-10°C.
- Limits for pollutants are in accordance with the *Wastewater Systems Effluent Regulations*.
- Appearance and size of bottles may vary between labs.

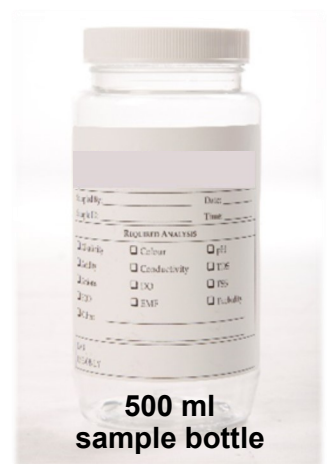
## Carbonaceous Biochemical Oxygen Demand (CBOD)

- Limit for CBOD is average  $\leq 25$  mg/L
- CBOD is a test to determine the impact of organic matter on available oxygen. The CBOD test is one way to assess how much treated effluent impacts a waterbody. Effluent that is high in CBOD reduces the amount of available oxygen for fish and other aquatic life.
- When testing for CBOD, it is preferred that you try to submerge the bottle entirely when collecting your sample to reduce any air space in the sample.



## Suspended Solids (SS)

- Limit for SS is average  $\leq 25$  mg/L
- Suspended solids is defined in the regulations as any solid matter contained in effluent that is retained on a filter of 2.0 micrometre (um) or smaller pore size. High amounts of SS reduces the amount of available light in water that is needed for fish and other aquatic life. Suspended solids can also lead to clogging up spawning areas for fish and essentially suffocate the eggs before they can hatch.
- When testing for SS, you can have some air space in the sample container, and it will not affect the test.



## Un-ionized Ammonia (NH<sub>3</sub>) (optional)

- Limit for NH<sub>3</sub> is a maximum of <1.25 mg/L

\*Note: You are not required to report results for un-ionized ammonia, however it is recommended to test for this occasionally to be sure you are within the required limits.

- Un-ionized ammonia (NH<sub>3</sub>) is the form of ammonia that is the most toxic to fish. As pH and temperature increase, the amount of un-ionized ammonia (NH<sub>3</sub>) in the effluent also increases. High ammonia levels are dangerous for freshwater organisms and can harm aquatic life. Ammonia may arise from the following sources: agricultural (e.g., ammonia-rich fertilizer), residential (e.g., cleaning products containing ammonia), atmospheric (e.g., combustion processes), and industrial.
- There will likely be a small amount of sulfuric acid in the bottle; be sure not to overflow the bottle. If the acid comes in a separate vial, leave enough space in the bottle to add the acid to your sample. Follow safety precautions when handling (i.e. gloves and goggles). **Indicate to the lab** that you require the determination of un-ionized ammonia with the **temperature adjusted to 15 C ±1 C for pH**.



## Toxicity (optional if your system is <2,500 m<sup>3</sup>/day)

- Effluent cannot be acutely lethal to fish

\*Note that while effluent deposited cannot be acutely lethal, small systems (<2500 m<sup>3</sup>/day) are not required to do acute lethality testing. However, you may wish to do this occasionally to ensure your effluent is not acutely lethal.

- To determine whether effluent is deadly to fish, request that the lab perform a **Single Concentration Rainbow Trout Test**. This test exposes juvenile rainbow trout to effluent in temperature-controlled and aerated plastic buckets to assess the acute lethality of effluent to fish.

\*You have the option to request a single or multiple concentration test, with or without pH stabilization.

- Line the 20L bucket with the plastic bag provided. Fill as full as possible, remove the air from the plastic bag, tie it off, place the bucket lid back on and seal. Fill in the label on the bucket. If no label is provided, write on the bucket in permanent marker, the client name and sample description.



[illegible]