



FACTSHEET

September 2016

018

SELECTING A LABORATORY

Bridget Visser

Canadian Association for Laboratory Accreditation

Information about CALA: www.cala.ca

Find a list of accredited labs:

www.caladirectory.ca

Taking water samples is a large component of treating wastewater; they are used to characterize the water, determine the necessary treatment, and evaluate the effectiveness of the system. Selecting a laboratory to analyze those samples is an important step and therefore many factors must be considered when choosing the best fit.

Accreditation of the laboratory is the most important criteria in a selection process. Different certifications have their own standards as to how samples are processed. The accreditation required would be outlined by organizations that request sample results. For example, MOECC requires results submitted to them be from CALA certified labs.

Laboratories can be small local companies or large international organizations. Larger companies may have multiple drop-off locations which can make one laboratory more accessible. Another method of accessing labs is couriering samples; a laboratory may allow samples to be shipped to a central location eliminating the need for drop-off points.

The cost of analyzing samples is based on the parameters being tested and the number of samples. When requesting quotes, choose a standard set of parameters that would be evaluated as additional parameters, if needed, can be added later for an extra fee. Estimate the amount of samples that would need to be tested; will there be a regular monthly sample or will the submissions be random? If it will be random, give an approximation of the number of samples of each parameter to be taken within a year.

Sample bottles will be provided by the laboratory as the parameters will have different requirements. Some parameters may require a larger volume of water to complete the test so multiple bottles will be used for one sample (Figure 1) whereas other bottles will have a preservative added to ensure the composition of the water does not change between the taking and the testing. The bottles will also have labels to be filled in with pertinent information such as date, time, and sample ID. Use a pen with ink that will not run if it gets wet when the bottle is being filled or a permanent marker. Some laboratories may pre-label some sections such as the parameter and account if the number of samples is large enough.

Some of the tested parameters can be time-sensitive. This means they must be processed and analyzed completely within a certain amount of time after being sampled. For example, *E.coli* and coliform tests must be completed within 48 hours in order to obtain accurate results. A good policy is to deliver the samples within 24 hours of taking them. When organizing the parameters to be tested, inquire whether any of them are time-sensitive. This can become an issue when samples are taken late in the week and the laboratory does not process samples over the weekend. Inquire



Figure 1: An example set of bottles used to take samples for a range of parameters

about scheduling time-sensitive samples to ensure a complete and accurate analysis. In general, time-sensitive samples should be taken on Monday to Wednesday. If the samples are couriered, ensure they will be shipped on time; same day or next day deliveries are best.

One sample location may require multiple bottles be filled to complete the analysis. A sample intended to be tested for four parameters may require four bottles be filled. All bottles will be labeled the same and the information found on those bottles will be copied onto the Chain of Custody form which is supplied by the laboratory. The bottle sets commonly come grouped together in a bag.

Samples must be delivered to the lab at a certain temperature; ideally they should be kept between 4 to 10°C. To do so, they are usually put in coolers with ice packs. Laboratories will have different policies and procedures regarding shipment as they may or may not supply the coolers and ice packs. It is a good policy to inquire about these factors when requesting a quote.

A Chain of Custody form must be filled out to ensure that the sample has not been tampered with in any way throughout the process. It also includes pertinent information such as the parameters the sample will be tested for, the name of the person taking the samples, and the person who will be receiving the report. Many laboratories have account managers who can help with setting up the process and answering questions.

If there are any issues with the samples, the laboratory will be in contact. An example of an issue is the sample hold time being exceeded. They may ask if the sample should be processed anyway with the understanding that the results may be unreliable and not accepted by certification or regulatory bodies. If the label on the bottle does not match what is written on the Chain of Custody form it will also be noted. Sample results are delivered based on the client's needs; an earlier delivery will cost extra over standard delivery. The method by which they are sent can include email, mail, or fax and is set up at the beginning with the account manager.

This factsheet was prepared by Bridget Visser on behalf of the Holland Marsh Growers' Association Water Project. This project was undertaken with the financial support of the Government of Canada through the federal Department of the Environment. Ce projet a été réalisé avec l'appui financier du gouvernement du Canada agissant par l'entremise du ministère fédéral de l'Environnement.