

Water Sample collection & Shipment For Cryptosporidium and Giardia Analysis

1.0 Sample collection

Samples are collected as bulk samples and shipped to the laboratory on ice for processing through the entire method, or are filtered in the field and shipped to the laboratory on ice for processing from elution using EPA 1623.1 SOP. CelA provides coolers, icepacks, Temperature monitoring devices and supplies such as cubitainers 10L for bulk or Envirocheck capsules for filtration for scheduled sampling in the field.

2.0 Sample shipment

Ambient water samples are dynamic environments and, depending on sample constituents and environmental conditions, Cryptosporidium oocysts or Giardia cysts present in a sample can degrade, potentially biasing analytical results. Chill all samples to reduce biological activity, and preserve the state of source water samples between collection and analysis. Samples analyzed by an off-site laboratory should be shipped on ice via overnight service on the day they are collected.

- 2.1 If samples are collected early in the day, chill samples by storing in a refrigerator between 1°C and 10°C or pre-icing the sample in a cooler. If the sample is pre-iced before shipping, replace with fresh ice immediately before shipment.
- 2.2 If samples are collected later in the day, these samples may be chilled overnight in a refrigerator between 1°C and 10°C. Consider overnight refrigeration for bulk water samples that will be shipped off-site, as this minimizes the potential for water samples collected during the summer to melt the ice in which they are packed and arrive at the laboratory at >20°C.
- 2.3 If samples are shipped after collection at >20°C with no chilling, the sample will not maintain the temperature during shipment at ≤20°C.
- 2.4 Public water systems shipping samples to off-site laboratories for analysis should include in the shipping container a means for monitoring the temperature of the sample during shipping to verify that the sample did not
- 2.5 Temperature Recorders—Option allows the measurement and recording of sample temperature during shipment and upon receipt. These small, waterproof devices contain a computer chip that can be programmed to record temperature at different time intervals. The information is then downloaded from the temperature recorder onto a computer via USB. Place the temperature recorder in a temperature sample, rather than loose in the cooler, or attached to the sample container. This option is appropriate for use with both filtered and bulk samples.
- 2.6 In order to conform to E.P.A. sampling practices the collected samples should be returned to the laboratory in the same cooler in which the bottles were shipped to you. Note: Before shipping the samples to the lab, it will be necessary to freeze the ice packs which were shipped with your sample bottles. Samples should be collected and shipped early in the week, no later than Wednesday. You will need to evaluate the method of transportation in light of the analyses requested.

3.0 Chain of Custody Documentation

Sample Custody: Cel-A requires that all samples be accompanied by a chain of custody documentation form (SOP# SP-02) copy provided attached. Samples should be transported preferably in cooler with pre-packaged ice to maintain temperature < 10 °C and ≥ 3 °C, away from dust, dirt and fumes as soon as possible to the laboratory. Sample temperature is monitored and recorded upon receipt at the laboratory by one of the following methods:

- Reusable Temperature Indicating Strips consisting of a sixteen-point vertical Thermometer with adhesive backing and temperature range of 26 to 56°F (~ -3 °C to 13. °C).The strip can be placed outside the bottle upon arrival to measure the approximate sample temperature.
- Upload of data from Temperature recorder device in the cooler via USB
- A bottle equal to the size of sample bottles is filled with tap water and provided to client for placement in the cooler. The temperature of this sample can be accurately measured upon receipt with a laboratory working thermometer. This option will not be practical for large (10-15 liters) sample containers, as a small bottle will not accurately represent such sample size.

Sample acceptance policy is outlined in Table 1. Any sample that does not meet Cel-A's outlined policy is flagged and the character and matter of the disparity is defined and documented.

Table 1 Sample Acceptance Criteria

<ol style="list-style-type: none"> 1. Accurate and extensive documentation (i.e. sample identification, location, date/ time of collection, collector's name, preservation type, sample type, and remarks, analysis requested). 2. Correct labeling of samples (i.e. durability of labels, use of permanent ink) containing their unique identification. 3. Utilization of proper sample containers. 4. Observance of required holding times/ proper temperature during transit (< 10 °C and ≥ 4 °C) 5. Sufficient sample volume if collected bulk (i.e. 10L) 6. In case of damage and/or contamination, appropriate procedures as described on line 7 will be followed. 7. Client notification of sample receipt same day via email, or fax. In the event the sample does not meet the above-specified acceptance criteria, the laboratory shall consult with the client in an immediate and timely manner for re-sampling.
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3.0 Sample holding times—Samples must be processed or examined within the holding times specified in method 1623.1. Sample collection and filtration—Sample elution must be initiated **within 96 hours of sample collection** (if shipped to the laboratory as a bulk sample) or filtration (if filtered in the field).

Because the data generated relative to the analysis of your samples may be used to fulfill E.P.A. monitoring requirements, these procedures must be followed. Failure to follow recommended procedures will cause the laboratory to reject your samples for analysis.

We strongly recommend the collection report, any other documents be placed in a zip-lock bag before placing them in the shipping container.