

6.12 PROTOCOL FOR SAMPLING PROTOZOA

Overview

The predominant protozoan pathogens in aquatic systems are *Cryptosporidium* and *Giardia lamblia*, and the presence of these can only be verified by the identification of *Cryptosporidium* oocysts and *Giardia* cysts. Due to the high risk of potential contamination of the sample during collection, care must be taken when collecting protozoan samples. Thus, additional procedures are followed to try and maintain sterile conditions.

Sources

Alberta Environment (2006 a), EMAN-N (2005)

At a glance

*watch
pressure*

- 1** Set up the sampling apparatus on shore with the intake line placed into the water column midway between the surface and bottom. Hold in-place using an anchoring rod. Care must be used when choosing a site to find good flow and to avoid any backwater areas.
- 2** Connect the pump to the battery and open the flow valve for maximum flow. 100 L of source water are pumped to flush the system and check for leaks. The valve is shut off and the pump disconnected from the battery.
- 3** Place a cartridge filter aseptically into the filter holder. Tighten the filter holder and place it in the stainless steel bucket to keep it upright. Record a water meter reading and the time. Start the pump and partially open the valve. Adjust the flow rate to 4 L/minute
- 4** At least 100 L of water should be pumped through the filter if possible. In water that is very clear additional samples should be pumped (usually 150-200 L). In very turbid conditions pumping continues only until the filter has reached capacity and the water flow has ceased.
- 5** Do not allow the pressure to exceed 30 psi. During pumping, the flow rate is adjusted when necessary to try to keep the rate constant.
- 6** When pumping is complete, close the flow valve to ensure no backflow of sample, and then disconnect the pump from the battery. Record the end time and meter reading.
- 7** Remove the filter aseptically from the filter holder and put it into a plastic Ziploc bag. The water and any sediment from the filter holder are poured into the bag containing the filter cartridge, seal the bag and put it into a second Ziploc bag to ensure that any leakage will be captured.
- 8** Sampling information including site name, date, start and end times, start and end meter readings, total volume pumped, flow rate, maximum pressure, sampler initials, and site sample number should be recorded on the outside bag.
- 9** Place the sample into a cooler containing ice packs or hot

water bottles, depending on the season. If not transported to the laboratory the same day, keep refrigerated at 4°C until sent. A 50 – 100 mL water sample for turbidity should also be collected whenever a filter sample is taken.

*cleaning
sampling
apparatus*

10 Once sampling has been completed, flush a minimum of 100 L of warm water through the system. The sampling apparatus is attached to the Pony pump and intake line, which in turn is attached to a water tap. Neutrad soap is added at the beginning of the cleaning. The filter holder is scrubbed with a stiff brush in instances where grit was present. Once flushed out and cleaned, the equipment can be left to air-dry.

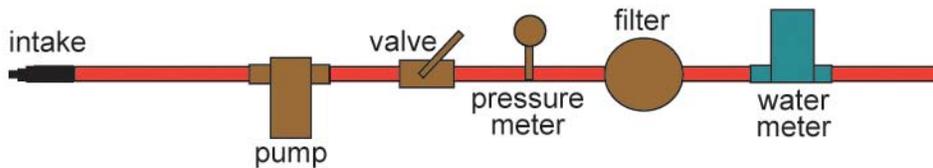


Figure 9: Assembled protozoan sampling apparatus (Alberta Environment (2006a))