

7.2 PROTOCOL FOR AIRLIFT SEDIMENT MONITORING

Overview		This procedure is used to sample sediments present in deep, moderately slow rivers.
Sources		Alberta Environment (2006 a)
Special safety concerns	<i>use caution with compressed air</i>	Be careful with storage and handling of the compressed air gas tanks. They are highly pressurized and the valve, if damaged, can cause the tank to turn into a projectile. When transporting the tanks by truck or boat, immobilize them in an upright position. Pressurized tanks cannot be transported by helicopter.
At a glance		<ol style="list-style-type: none">1 Remove the protective cap from one tank just before setting up.2 Carefully attach the regulator to the tank and be careful not to over tighten as the brass threads will easily strip.3 Attach hoses and the air lift sampler to the tank.4 With the regulator closed, carefully open the main tank valve fully and then turn the valve back one full turn.5 Slowly open the regulator until the pressure in the second stage reaches 20-45 psi (140 to 310 kPa).6 Place the inlet of the sampler on the substrate to create a good seal by moving it around until it feels stable and set into the substrate.7 Deliver short pulses of compressed gas to the sampler.8 Collect the thickest slurry in clean buckets (pre-filter it through an 80 µm mesh held under the sampler outlet to limit particle size).9 Collect five to six buckets in total and move the sampler frequently.10 Clearly label the site on the buckets and ensure that their lids are tightly sealed.11 When finished sampling turn off the main valve on the tank, bleed pressure out of the line and unhook the hoses. Carefully remove the regulator and replace the protective cap on the tank.12 Record number and size of buckets collected, exact sampling location, flow conditions, turbidity of the river, amount and a description of the sediment, abundance of attached algae and macrophytes, as well as date and time.13 Upon return to the laboratory, let the buckets containing the sediment stand for 20 to 24 hours.14 Siphon off the supernatant, saving this in clean jar(s) as it may be analyzed for the same parameters as the sediment.15 Put the remaining sediment in clean glass jars.16 Let the jars sit for 24 hours in a refrigerator. Then remove the supernatant from the top of the jar and save with the previously collected supernatant.

- 17** Collect a minimum of one 500 mL jar of sediment.
- 18** Clearly label the jar with site and date.
- 19** Freeze the sample.



Photo 15. Air lift sampler (Courtesy: Darcy McDonald, Alberta Environment and from Alberta Environment (2006))