

## SAMPLING PROCEDURE FOR MPA

Enclosed with this kit is a copy of the EPA's sampling requirements for the Microscopic Particulate Analysis. With the proper equipment, MPA sampling is very easy. Plan on dedicating at least 8.5 hours of filtering time for this project. Please keep in mind the following requirements:

1. A minimum of 500 gallons must run through the filter.
2. The pressure must be regulated at 10 psi.
3. The flow rate must be regulated at 1 gpm.
4. The filter must be received at the lab by Thursday.

When the filtration is completed, unscrew the filter housing and pour out all but 100-200mL of the water in the clear plastic housing. Put on a pair of the latex gloves provided. Carefully remove the filter from the filter bowl and place it into a Ziploc bag. Pour the 100-200mL remaining in the filter housing into the bag containing the filter and seal the bag. Please double bag the filter to prevent leakage. The filter should be kept cool (4 degrees Celsius) but not allowed to freeze. Frozen filters **CANNOT** be tested for MPA. The filter should be delivered to the laboratory within 48 hours after filtration.

If you have any additional questions or concerns please do not hesitate to call me. Thank you for choosing Analytical Laboratories, Inc., for your testing needs.

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Analytical Laboratories, Inc.

## SAMPLE COLLECTION FOR MPA

### 1.0 Sample Equipment and materials

1.1 A MPA Sampling device consists of the following parts (**The flow of water should be as follows**):

1.1.1 Inlet hose with backflow preventor (Watts #8) – **NOT PROVIDED**

1.1.2 Pressure regulator (Watts IR56) plus pressure gauge (Baxter GS 202-2), 0-100 psi (**NOTE: If reading is >10 psi, loosen lock nut and adjust regulator to 10 psi. Retighten lock nut. Turn the regulator clockwise to increase the flow and counterclockwise to decrease the flow!**)

1.1.3 Ten inch cartridge filter housing, preferably Commercial Filter model LT-10 (3)- (part #9499-5015)

1.1.4 Water meter readable in gallons, (i.e. Kent c700 with plastic housing)

1.1.5 Flow control valve (limiting flow orifice) rated at 1.0 gal/min (3.8 L/min)

1.1.6 Discharge hose

### 1.2 MPA Sampling Materials

1.2.1 Ten inch, 1 um polypropylene, yarn wound (string), nominal porosity cartridge filter, and preferably commercial Honeycomb Filter Tubes (M39R10A) (3).

1.2.2 Whirl Pak plastic bags (5.5"X14") or Ziploc freezer bags

### 2.0 Sample Collection Parameters

- 2.1 **Minimum sample volume of 500 gallons**, recommended 1000 gallons over a 8-24 hours period
- 2.2 Pressure over filter face controlled at **10 psi or less** using an inline pressure regulator and gauge (0-50 psi)
- 2.3 Flow through the filter unit should be controlled at **1 gpm or less (3.8 L) /min** using a limiting flow orifice rated at 1 gpm
- 2.4 Filter samples are collected at the groundwater source
  - 2.4.1 Avoid sample sites within the distributed systems
  - 2.4.2 Use of electric or gasoline-powered pumps are recommended if no positive pressure is available at the ground water source. If collection at the source is not possible, final report must “qualify” sample
  - 2.4.3 Spring boxes should be cleaned prior to sampling by scrubbing the walls and removing all visible debris. Following cleaning the spring should be flushed for a day or more before samples are collected.
- 2.5 Samples are collected prior to any blending, disinfection or other treatment
- 2.6 A minimum of two samples should be collected
  - 2.6.1 One sample collected following a heavy rain fall (i.e. minimum of 2 inches with in a week prior) or snow melt or other critical period (i.e. irrigation season).
  - 2.6.2 One sample collected during the late summer of following an extended period of little or no rainfall
  - 2.6.3 If only one sample can be collected, it should be taken during worst case period, i.e. after a rainfall or during a spring snowmelt.

- 2.7 **Samples must be shipped iced (3° C) in insulated, watertight containers. Blue ice is acceptable but filters must not be in direct contact with the blue ice during transit.**
  - 2.8 **The maximum transit/holding time should not exceed 48 hours**
  - 2.9 Multiple samples should be clearly labeled preferably marked in or on the tube filter transport bag using a waterproof lab marker pen
- 3.0 Sample Collection Procedure
- 3.1 Connect sampling unit to pressure source or pump in the direction of flow indicated on filter housing. Flush the unit without a filter for 3-5 minutes with the source water to be sampled.
  - 3.2 Record the date, time or day and the gallon reading from water meter before and after sampling. Document the name, address, and location of each sample site in addition to the exact sample point. Identify the water source as a spring, dug well, drilled well, artesian well, or other. Document the distance to the nearest rivers, streams, irrigation canal, lake or pond.
  - 3.3 Insert filter in the housing and tighten it. Make sure rubber washer or “O” ring is in place between filter housing bowl and base.
  - 3.4 After installing filter, turn water on slowly with the unit in an upright position. Invert unit to make sure all the air with in the housing has been expelled. When housing is full of water, return unit to upright position and turn volume on completely.

- 3.5 Check reading on pressure gauge. If reading is >10 psi, loosen lock nut and adjust regulator to 10 psi. Retighten lock nut.**
- 3.6 The sampling unit should be allowed to run for an 8-24 hour period. Volumes sampled over this protracted time may vary from 500 to over 1000 gallons. Samples volume filtered will usually be dictated by the time available for sampling, turbidity and particulate content of the source water being tested.
- 3.7 After filtering sample turn off the faucet or pump and disconnect hose from incoming water source. Unscrew housing bowl from the top and pour off all but 100-200 mL. Do not touch the filter with bare hands, use sanitary rubber gloves or a plastic bag to remove filter, and place in a plastic Whirl Pak/ Ziploc bag. Pour the water remaining in the filter bowl (100-200 mL) into the Whirl Pak/ Ziploc bag with the filter. Seal the bag securely.
- 3.8 Pack the filter (s) in a small, insulated container or ice chest with a bag of ice and/or blue ice packs. Do not place blue ice in direct contact with filters because this can cause the filters to freeze. Frozen fibers cannot be analyzed for MPA. If possible place the filter bags in an upright position with the seal at the top.

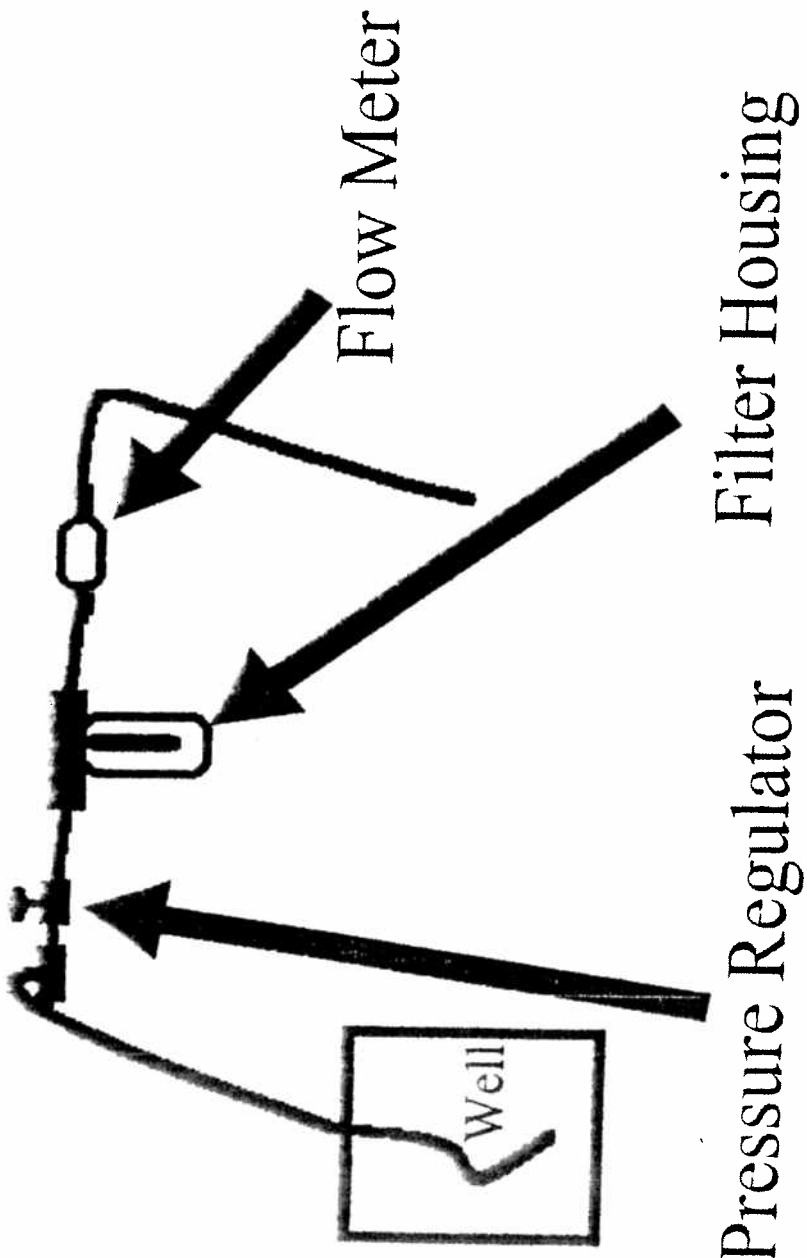
- 4.0 If provided, fill out the sampler data sheet providing all information requested. Place data sheet (s) in plastic bag and send with filters.
- 4.1 The lab should receive filters within 48 hrs. Send filters and data sheets via 24-hour delivery services (Federal Express, etc.) to the address below:

ANALYTICAL LABORATORIES, INC.  
1804 N 33<sup>rd</sup> St.  
Boise, ID 83703

- 4.2 If there are any further questions regarding the operation of the sampling unit contact:

Lynn Murray @ 1-800-574-5773

Direction of MPA Apparatus →



Analytical Laboratories, Inc. 1804 N. 33<sup>rd</sup> Boise, ID 83703  
Phone: 208.342.5515 Fax: 208.342.5591  
email: ali@analyticallaboratories.com

Chain of Custody for MPA Test

Name of Water System:

PWS #:

Address:

City/State/Zip:

Phone Number:

Name of Collector:

Date of Sample:

Sampling Source:

Type of filter used:

Time of Sampling: Start:

Finish:

Flow Meter Reading: Start:

Finish:

Total Gallons sampled:

Water Treatment: (Check one)

\_\_\_\_\_ : Raw Water \_\_\_\_\_ : Filtered

\_\_\_\_\_ : Disinfected \_\_\_\_\_ : Filtered and Disinfected

Location of Nearest Surface Water:

Lab use only:

1° pellet volume:

2° pellet volume: