

GAP EnviroMicrobial Services Ltd.

**APPROVAL FORM FOR RELEASE OF
ANALYTICAL STANDARD OPERATING PROCEDURE (SOP) FOR ROUTINE USE**

SOP #89: Microscopic Particulate Analysis (MPA) Sampling Instructions

COMPUTER FILE NAME: 89-SOP-MPA Sampling Instructions-3

DATE OF LAST REVISION: Revision 3, July 15, 2008

NUMBER OF PAGES IN DOCUMENT: 2

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DATE: March 13, 2015

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DATE: March 13, 2015

DATE REVIEWED: July 13, 2009, April 13, 2010, April 18, 2011, May 16, 2012, April 9, 2013, April 3, 2014, March 13, 2015, March 9, 2016

❖ **The approval of this document is valid for one year at which time it will be subject to review to determine if any updates or modifications are warranted**

MICROSCOPIC PARTICULATE ANALYSIS (MPA) SAMPLING INSTRUCTIONS

1. PURPOSE:

- 1.1. These instructions explain the sampling procedure for Microscopic Particulate Analysis for clients.

2. PROCEDURE:

- 2.1. Allow distribution lines to drain for five minutes without the sampling apparatus in place in order to remove settled debris.
- 2.2. Assemble the sampling unit without the filter.
- 2.3. Attach the unit to the source (pump or tap) and allow the water to flow through for ten minutes. Ensure that the sampling unit does not leak. Turn off the source water.
- 2.4. Using the sterile gloves provided, insert a clean, sterile filter into the filter housing.
- 2.5. Run the water through the sampling unit and adjust the pressure regulator such that the pressure gauge reads 10 psi.
- 2.6. Using a stopwatch and the flow meter, adjust the flow rate to 4 L per minute.
- 2.7. Record the time at which sampling began, the meter reading, the pressure, and the flow rate on the form provided with the sampler, (available from the GAP network, located under GAP Info, Media and Methods, Microbiology Methods (non-CALA), MPA-Microscopic Particulate Analysis, Client forms, MPA Source ID). Also fill out additional client information on the form (attached below) under the **System Type** and **Water Source Identification** headings.
- 2.8. Continue sampling until the appropriate volume of water has been filtered. It should be monitored periodically to ensure the unit is still sampling properly. If well water or spring water is being tested, a minimum of 2000 L should be filtered. GAP recommends that 4000 L be filtered within an 8 to 24 hour period. However, if the water is extremely turbid, the filter may become clogged before the recommended volume is filtered. In such a case, a smaller volume is acceptable.
- 2.9. When the appropriate amount of water is run through the sampling unit, stop the flow of water and record the time and final volume.
- 2.10. Disconnect the filter housing and pour some water into a ziploc bag (provided). Using the sterile gloves provided, place the filter in the bag with the water. Seal the bag, while minimizing the amount of air trapped inside.
- 2.11. Place this bag into a second ziploc bag and confirm the bags will not leak. Be sure to label the second bag with a water-resistant marker and include a fully completed GAP chain of custody with each submission. Chain of custody forms can be obtained by contacting the laboratory, or are available from the GAP website (www.gaplab.com).
- 2.12. Place the sample into a cooler with ice. Be sure that the filter is not in direct contact with the ice. Frozen filters cannot be analyzed.
- 2.13. Ship the cooler immediately to GAP so that the sample can be analyzed the next day.
- 2.14. Samples should reach the laboratory within 48 hours of sampling.

2.15. Cleaning the MPA Sampling Unit Between Samples

2.15.1. The sampling unit will be shipped following a thorough cleaning by GAP staff. The unit can be used to filter one sample. However, if additional samples are needed, the sampling unit will require cleansing of all surface water indicators such as *Giardia* cysts, *Cryptosporidium* oocysts, algae and sediment. If this is the case, the cleanest water (treated water, well water) should be filtered first and the most contaminated water (surface water) should be filtered last. When cleaning the unit, assemble the apparatus so that the filter housing is installed **without** the filter inside. Flush the system with **20 L** of water from the **next** sampling location.

3. **HISTORY OF CHANGES:**

3.1. Revision 1 – May 1, 2006

3.1.1. New.

3.2. Revision 2 – September 19, 2007

3.2.1. Was revised to address the new company name change.

3.3. Revision 3 – July 15, 2008

3.3.1. Revision 8 was reviewed and no changes were required.

4. **REFERENCE:**

4.1. EPA Method 9101: Microscopic Particulate Analysis (MPA) for Filtration Plant Optimization, April 1996.

4.2. File found in GAP Quality System/CALA, SCC, UBC, CMPT, EPA/EPA Crypto & Giardia, MPA/MPA method EPA(filtration plant) April 1996 GWUDI