Surface Water Sampling
Standard Operating Procedure

1.0 Purpose

The purpose of this procedure is to describe the field methodology the collection of surface water samplings in the Town of Plymouth.

2.0 Definitions

Surface water: includes all water on the surface of the ground directly exposed to the atmosphere, including, but not limited to, lakes, ponds, reservoirs, artificial impoundments, streams, rivers, springs, seeps, and wetlands.

YSI: Yellow Springs Instrument to collect field water quality parameters.

3.0 Sampling Locations

Sampling locations are to be determined and evaluated prior to the start of sampling. Locations will be marked in the field by staking, flagging, or by reference to a landmark. A site map will be created for each location and placed in field logbook with a clear and concise description.

4.0 Procedure

4.1 Equipment

- map of sampling locations
- surface water sampling device (Niskin bottle or stainless steel beaker)
- instruments used to measure water quality parameters (e.g., YSI)
- field notebook
- waterproof permanent marker
- paper towels
- appropriate decontamination equipment (Deionized water)
- sampling gloves for each site
- waders/rubber boots
- cooler with ice
- sample containers and preservatives as needed for analysis
- sample labels, waterproof sealing tape
- chain-of-custody forms

4.2 Sampling Method

Sampling will be conducted starting downstream working upstream to avoid disturbance of surface water quality.

Arrive at site and record all applicable information in the logbook including; sampling personnel, weather conditions, site condition, instrument calibration, sampling analysis for laboratory, QA/QC control (field blank, duplicate,), number and type of bottles, sampling time, sampling method.

Label the sample bottle with appropriate label and cover with clear waterproof sealing tape.

Complete chain-of-custody form prior to departing site.

Each sampling round (daily) shall conduct QA/QC for laboratory analysis in the form of a field duplicate and field blank. The field duplicate shall be collected at the same time as the original sample and noted in the logbook. The field blank shall be filled with deionized water and also noted in the logbook.

4.2.1 Direct Grab Method for Unpreserved Bottles

Samples from shallow depths can readily be collected by the direct grab method, i.e., submerging the sample container. This method can be performed when preservatives have not been added to sample containers prior to sampling.

With minimum surface disturbance, submerge the unpreserved sample bottle with the mouth of the container facing upstream and allow sample stream to flow gently into the bottle. Following collection, place samples in cooler with ice.

Immediately following sample collection, submerge the YSI unit at the sampling site to take water quality measurements. Allow the YSI unit to stabilize in the surface water prior to the collection of parameters. Record parameters in the field logbook including the time of collection.

4.2.2 Sampling (or Transfer) Device Method for Preserved Bottles

The sampling device shall have a capacity of 500mL to minimize the number of times the surface water must be sampled, thus reducing the possible disturbance to any sediment layers. The sample container may be disposable or constructed of a non-reactive material, such as stainless steel, glass, or Teflon. If the sampling devise is re-used it must be thoroughly cleaned with deionized water prior to sampling a different source.

If a pre-cleaned stainless steel dipper or similar device is used, submerge with mouth facing upstream with minimal surface disturbance. Transfer to sample bottles and place samples in cooler with ice.

Properly discard or thoroughly clean the transfer container.

Immediately following sample collection, submerge the YSI unit at the sampling site to take water quality measurements. Allow the YSI unit to stabilize in the surface water prior to the collection of parameters. Record parameters in the field logbook including the time of collection.

5.0 Decontamination

A deionized rinse of the sampling equipment is an appropriate decon procedure for use between samples collected from the same surface water ecosystem. It is not necessary to decon the YSI meter when sampling downstream to upstream in the same surface water ecosystem.