

## APPENDIX C

### STANDARD OPERATING PROCEDURE FOR LABORATORY IDENTIFICATION AND ENUMERATION

Preserved macroinvertebrate samples and chain of custody records are delivered to the laboratory whereby all samples received are verified against the chain of custody upon arrival. The laboratory randomly chooses 10% of the received samples for quality assurance/quality control (QA/QC).

Samples are prepared for identification by sorting the macroinvertebrates from sediment and debris, and placing the organisms into labeled vials containing ethanol. Samples are rinsed to remove ethanol preservative and placed into processing trays. The processing trays are marked with a grid pattern totaling 15 cells that are the same size and are numbered. The sample is agitated in the tray to evenly distribute the material among the grids.

All 15 grids are processed (a whole sample) unless excessive numbers of organisms are present. If excessive numbers are found, one of the grids chosen at random will be picked (1/15 subsample fraction). If at least 300 organisms are found after picking the entire grid subsample, picking is considered complete. If less than 300 organisms are found, processing will continue by picking another randomly chosen grid subsample. Additional grids will be picked, if necessary, until the 300-organism count is reached. If the 300-organism count is reached during the sorting of any single grid subsample, picking is continued until that entire fraction has been picked. All material from each randomly selected grid is removed from the tray and transferred to a large picking tray for processing.

All organisms processed in the subsample are placed in a separate vial and labeled according to the number of grids picked. When sub-sampling, the entire sample is also processed for any large or rare organisms, which are placed in a separate vial labeled 100% Large/Rare. Vials are filled with an ethanol preservative.

The taxonomist empties a vial into a glass dish and places it under a dissecting microscope. All individuals are counted and identified to the lowest possible taxonomic level using the most current taxonomic literature and returned to the vial containing the ethanol preservative. Both larvae and pupae Chironomids (midges) are identified to genus or species group using the appropriate taxonomic references. In certain instances, early instars or specimens in poor condition may only be identified to subfamily or tribe. Oligochaetes (worms) are identified to the lowest possible taxonomic level using the appropriate taxonomic references. Identifications and counts are recorded on data benchsheets.

A QA/QC check is performed on 10% of the picked/sorted samples. This involves a second person checking over the processed/picked samples to ensure that no more than 5% of the total organisms originally picked from a sample are missed. If more than 5% of the total organisms that were originally picked are found, samples are then re-picked until less than 5% of the original total are missed. Identifications and organism counts are verified by another taxonomist

to ensure data accuracy. When necessary, specimens of a particular taxonomic group are sent to recognized experts for taxonomic verification purposes.