Draft Monitoring Plan for Eco-toilets Being Used for Achieving Requirement of the Total Daily Maximum Load Limitations.

Background

Eco-toilets include a range of strategies that divert various subsets of the residential wastewater stream to alternative methods of storage and handling. They include composting toilets (various designs) and urine diverting toilets. There are no commonly accepted nutrient-reducing credits for these strategies, so accordingly the sampling strategy presented below focuses on the pilot application of these technologies and the determination of appropriate reduction credits.

Monitoring of Service Contracts and Maintenance Requirements.

Since the residual byproducts of all diversion technologies contain nutrients, the volume and disposition of all residuals (urine, compost and compost "tea") must be closely monitored. It is recommended that a contract be in place with all owners of facilities having an eco-toilet and that these contracts be tracked and required to be continuously in force. Prepayment for disposal is considered essential for ensuring proper residual disposal. Contracts should include a biannual inspection.

Discharge Monitoring

There is no commonly accepted nutrient reduction credit for use of composting toilets or urine diverting toilets. Accordingly, monitoring of the discharge from the remaining graywater disposal system must be completed. It is recommended that in the pilot application of eco-toilets there be a requirement for monthly sampling for total nitrogen to determine the nutrient removal credit and the variability associated with these values.

Discharge samples should be taken in the distribution box situated distal to the septic tank and proximal to the soil absorption system or in the outlet tee of the septic tank.

Financial Impact

Including the requirements for service contracts that include regular inspection and maintenance, the following is an estimated annual cost for I/A system monitoring. The estimate does *not* assume any economy of scale and assumes that monitoring would be completed by a third party (not the operator of the system). It is likely that systems in a watershed will be geographically close and this would offer savings on the labor and mileage, particularly if many can be sampled on the same day.

Service Contract Estimate	$200.00
Administrative fee for tracking contracts	$30.00
Total Nitrogen sampling at effluent	$720.00
Labor involved in sampling collection	$720.00
Travel (mileage) @ $.55/mile	$330.00
Total	$2,000.00
Monthly	$166.67

These costs do NOT include the cost of transporting and disposing of residual by products (compost, compost “tea” and urine).