APPENDIX A: DETAILED PROCEDURES

A.1. Procedure for Splitting Samples

Samples were divided for analysis using a Teflon cone splitter with the following USGS procedure (Shelton 1994):

1) The cone splitter was set up on a level surface in a laboratory sink.
2) Containers were placed under each outlet tube of the splitter in proportion to the amount of water to be provided for each subsample. TSS required 500-mL for analysis, while total and dissolved phosphorus each required 200-mL.
3) Samples bottles were agitated for 15 seconds to resuspend sediment material and quickly inverted into the splitter reservoir.
4) Subsample containers were removed from the splitter and immediately capped.
5) The splitter was thoroughly rinsed with distilled water between samples.

A.2. Procedure for Suspended Sediment Concentration (SSC)

SSC analysis was performed in the UW-Green Bay laboratory using the following procedure (U.S. Forest Service 2002):

1) Sample number, date, and time (CST) were recorded in the laboratory notebook.
2) Based on the amount of sediment visible in the sample bottle, the cone splitter was used to divide the sample into a volume that would filter in less than 45 minutes.
3) The number and weight of the pre-weighed glass fiber filter was recorded, and forceps were used to transfer the filter onto the filtration device. The filter was seated with a small amount of distilled water.
4) The sample to be filtered was weighed with the bottle cap off; this value was recorded as the "Total Bottle Weight".
5) The bottle was capped and shaken to thoroughly mix the sample. The sample was poured into the filtration device, and rinsed with distilled water to remove all sediment. The empty bottle weight was recorded after the transfer (bottle cap off).
6) Debris greater than ¼-inch in size was removed from the sample during filtration.
7) After filtration was complete, the filtration device and filter were washed three times with 10-ml volumes of distilled water.
8) Vacuum pressure was released and the filter was removed to the aluminum weigh dish using forceps. The filter was allowed to air dry for approximately 20 minutes.

9) The filter was dried in a 105°C oven for 2 hours. After cooling in a dessicator, filters were reweighed to the nearest 0.0001 gram. The cycle of drying, cooling, dessicating, and weighing was repeated until a constant weight was obtained. This weight was recorded as the "Weight of Filter and Sediment".
10) Suspended sediment concentration was computed using the following series of equations:

$W_{WS} = B_F - B_E$ *Equation A.1*

Where:

B_F = Total Bottle Weight, Full
B_E = Empty Bottle Weight
W_{WS} = Weight of Water and Sediment in Sample

$W_S = W_{FS} - W_F$ *Equation A.2*

Where:

W_F = Weight of Filter
W_{FS} = Weight of Filter and Sediment
W_S = Weight of Sediment

$V_W = (W_{WS} - W_S) / \rho_W$ *Equation A.3*

Where:

W_{WS} = Weight of Water and Sediment in Sample
W_S = Weight of Sediment
V_W = Volume of Water
ρ_W = Density of Water, 1.00 g/cc

$V_S = W_S / \rho_S$ *Equation A.4*

Where:

W_S = Weight of Sediment
V_S = Volume of Sediment
ρ_S = Particle Density of Sediment, 2.65 g/cc

$SSC = W_S / (V_S + V_W)$ *Equation A.5*

Where:

W_S = Weight of Sediment
V_W = Volume of Water
V_S = Volume of Sediment
SSC = Suspended Sediment Concentration, mg/L