

## **WinSLAMM v 9.4.0 Changes**

### **Significant Changes to the Program – v 9.4.0:**

#### **Biofilters**

1. Added the option to route both the outflow particle size distribution and the outflow hydrograph from an outfall wet detention pond to an outfall biofilter for each event.
2. Added the biofilter control practice as an option for the Freeway land use.
3. Routed particle sizes through biofilter engineered soil instead of applying a constant percent reduction value for each engineered soil type.
4. Added the option to modify the biofilter control practice in a group of files at one time.
5. Corrected water balance calculation discrepancies that occurred when modeling biofilters with only engineered soil and/or rock layers and no drain tiles.

#### **Hydrodynamic Devices and Catchbasins**

1. Added the Lamella Plate feature option to the hydrodynamic and catchbasin control practices. This feature has the effect of increasing the area of the device.

#### **Street Cleaning**

This version on WinSLAMM, along with the WinSLAMM v 9.2.6 and v 9.3.4 updates, include a change to the way the program calculates street cleaning when the user selects a street cleaning frequency (eg, one sweeping per month) and is also using the Winter Season option. Previously, the program selected April 1st as the first cleaning date, regardless of when the winter season ended. This meant that a number of washoff events would occur before the street cleaning occurred, reducing the efficiency of the street cleaning control practice. With this change, the program will use the end of winter season date as the date of the first cleaning. This will have the effect of increasing the efficiency of the street cleaning control practice slightly. Wisconsin DNR test runs indicate that the increases range from 1 to 9 percent, depending upon the winter season date, land use, street cleaning frequency, rain file and type of cleaner.

#### **Control Practices in Series**

With this version, we have begun to address the issue of control practices in series. This version, as noted above, allows the user to route wet detention pond hydrographs and particle size distributions to a biofilter. Full hydrograph and particle size routing will be available in version 10, which we are currently working on. In the interim, we have prepared a discussion paper that describes how to evaluate many control practices in series using the model. This information is available both as a separate document on the CD the program is distributed on, and in the program help file, under the topic "Control Practices in Series".

**Minor changes or fixes**

1. Changed the concentration to mass conversion factor from 454000 to 453592 and the volume conversion factor from 28.32 to 28.3168 to remove minor rounding errors. This will typically result in a change in output from the previous version of 0.09%
2. To make debugging batch file processor runs easier, we add a button to print the files created and not created during a batch processor run to a file.
3. Corrected a duplicate hydrograph problem when selecting output options 6- 8.
4. Added a default option to apply one particle size distribution file to all control practices that require a particle size distribution file.
5. Modified the critical particle size and settling calculations to reflect a more accurate viscosity, water density and Newton's Law settling calculation, which applies to all control practices that rely on settling. This change included adding the ability to change the water temperature on a monthly basis through the Tools/Program Options menu.
6. The program now allows users to save version 9.4 files as either version 9.3 files or v 9.2 files.
7. Corrected storage volume calculations for the porous pavement control device to provide a larger, more accurate storage reservoir for the device.