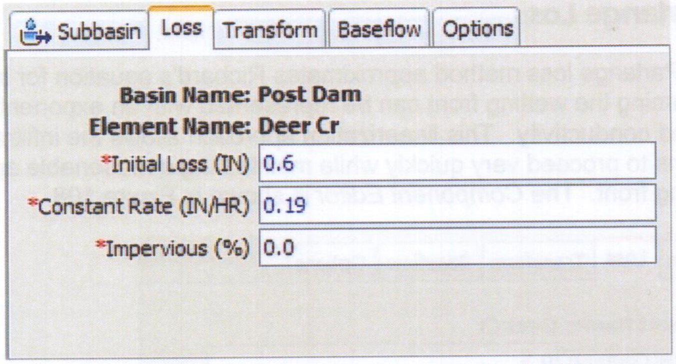

Figure 106. *Initial and constant loss method editor.*

SCS Curve Number Loss

The Soil Conservation Service (Now the Natural Resources Conservation Service) curve number method implements the curve number methodology for incremental losses. Originally, the methodology was intended to calculate total infiltration during a storm. The program computes incremental precipitation during a storm by recalculating the infiltration volume at the end of each time interval. Infiltration during each time interval is the difference in volume at the end of two adjacent time intervals. The *Component Editor* is shown in Figure 107.

You may optionally enter an initial abstraction. The initial abstraction defines the amount of precipitation that must fall before surface excess results. However, it is not the same as an initial interception or initial loss since changing the initial abstraction changes the infiltration response later in the storm. If this value is left blank, it will be automatically calculated as 0.2 times the potential retention, which is calculated from the curve number.

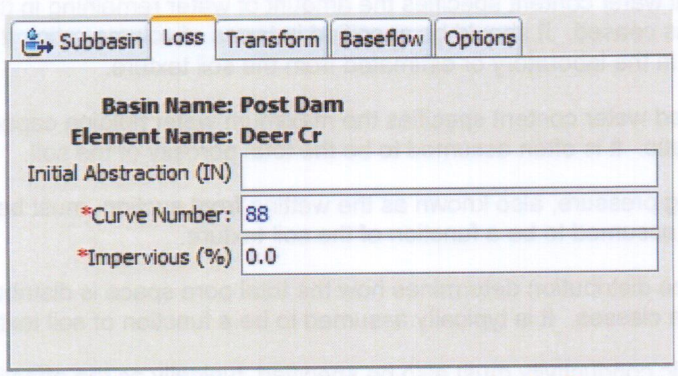

Figure 107. *SCS curve number loss method editor.*

You must enter a curve number. This should be a composite curve number that represents all of the different soil group and land use combinations in the subbasin. The composite curve number should not include any impervious area that will be specified separately as the percentage of impervious area.

The percentage of the subbasin which is directly connected impervious area can be specified. Any percentage specified should not be included in computing the composite curve number. No loss calculations are carried out on the impervious area; all precipitation on that portion of the subbasin becomes excess precipitation and subject to direct runoff.

Smith Parlange Loss

The Smith Parlange loss method approximates Richard's equation for infiltration into soil by assuming the wetting front can be represented with an exponential scaling of the saturated conductivity. This linearization approach allows the infiltration computations to proceed very quickly while maintaining a reasonable approximation of the wetting front. The *Component Editor* is shown in Figure 108.

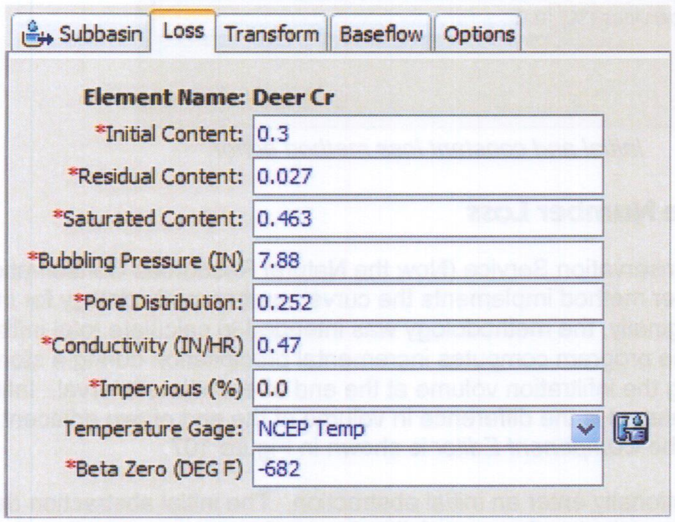

Figure 108. Smith Parlange loss method editor.

The initial water content gives the initial saturation of the soil at the beginning of a simulation. It should be specified in terms of volume ratio.

The residual water content specifies the amount of water remaining in the soil after all drainage has ceased. It should be specified in terms of volume ratio. It may be determined in the laboratory or estimated from the soil texture.

The saturated water content specifies the maximum water holding capacity in terms of volume ratio. It is often assumed to be the total porosity of the soil.

The bubbling pressure, also known as the wetting front suction, must be specified. It is generally assumed to be a function of the soil texture.

The pore size distribution determines how the total pore space is distributed in different size classes. It is typically assumed to be a function of soil texture.

The hydraulic conductivity must also be specified, typically as the effective saturated conductivity. It can be estimated from field tests or approximated by knowing the soil texture.

The percentage of the subbasin which is directly connected impervious area can be specified. No loss calculations are carried out on the impervious area; all precipitation on that portion of the subbasin becomes excess precipitation and subject to direct runoff.

Optionally, a temperature gage may be selected for adjusting the water density, water viscosity, and matric potential based on temperature. If no temperature gage is selected then a temperature of 25C (75F) is assumed to prevail. The gage must be defined in the time-series manager before it can be selected in the component editor.