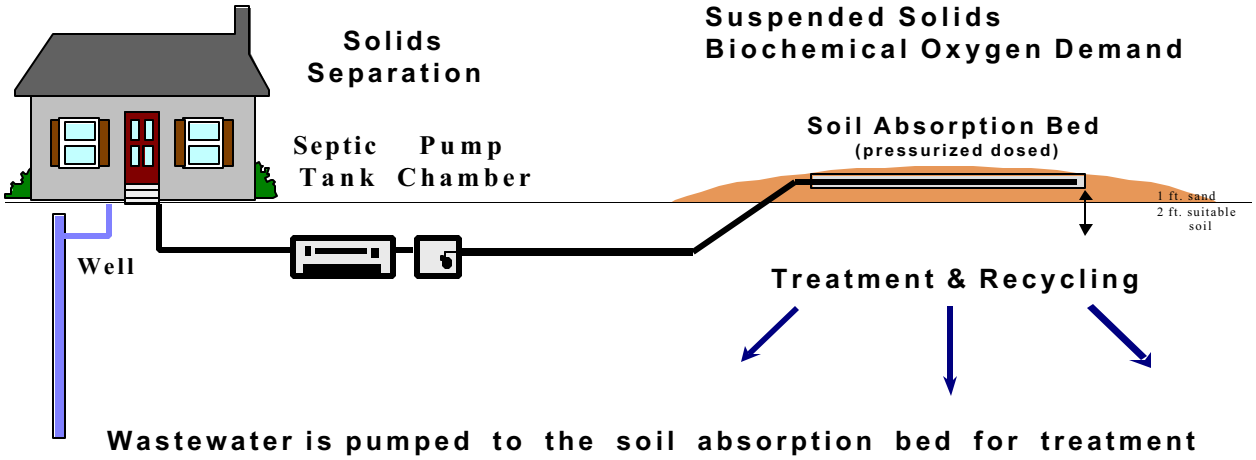
Wisconsin Mound

Secondary Treatment in Soil Absorption Bed

Primary Treatment

Solids Separation

Removes:
Pathogens
Suspended Solids
Biochemical Oxygen Demand



Wastewater is pumped to the soil absorption bed for treatment by physical filtration, biological reduction by aerobic bacteria, and ion bonding to clay particles.

A mound system, like a conventional system, consists of a septic tank and a soil absorption bed. In the mound system, however, sand is added where suitable native soil is insufficient. Clarified effluent from the septic tank is pumped, in controlled pressurized doses, to an aboveground, free-standing sand layer. The sand layer, placed upon a specially prepared area of native soil, serves as the medium on which aerobic bacteria facilitate much of the secondary treatment.

In a mound, the sand layer and native soil combined provide 36 inches of soil depth for treatment. Thus treatment is at least as effective as a conventional system. Delivering effluent to the soil absorption bed in controlled pressurized doses has some additional advantages. Wastewater is equally distributed, which reduces the chances for localized clogging. And the absorption bed has a "rest period" between doses that can result in superior pathogen and nutrient removal. Additional research over the past 20 years has provided increasingly effective specifications for mound geometry, sand characteristics, dosing frequencies, and loading rates.

Solids must be periodically pumped from the septic tank, as well as from the pump chamber to insure proper functioning of the pump mechanism. Proper site preparation protocols must be taken to prevent the leakage of effluent at the base of the mound.

The use of sand as a medium for wastewater treatment, rather than native soil, is more than 100 years old. In Wisconsin, beginning in 1971, the legislature funded research intended to provide effective systems for sites where a lack of native soil prohibited a conventional system. The mound system using sand as a medium became available for general use in 1980, but new construction was restricted to sites with 24 inches of native soil. This increased the suitable land area by 10 percentage points. There are no technical or public health reasons for this restriction. The proposed code will allow mound systems on sites with 6 inches of native soil, which will increase the suitable land area by another 25 percentage points. Currently, in Wisconsin, mound systems constitute approximately 20% of all new systems installed and 23% of replacements. These systems are also used in many other states.