Glossary of Wastewater Terms

Aerobic
Wastewater treatment depending on oxygen for bacterial breakdown of waste.

Anaerobic
Wastewater treatment in which bacteria breakdown waste without using oxygen.

Bioengineering
A low-tech construction method using living plants as a functioning, self-sustaining part of the system. Examples include control of erosion of stream banks, water quality treatment, and flood control and habitat restoration.

BOD
Biochemical Oxygen Demand. Decomposing organics require oxygen. The BOD5 test measures the oxygen consumed by organisms as they decompose organics over a five-day period. BOD is thus an indicator of the concentration of organics in water.

COD
Chemical Oxygen Demand. The COD test measures the chemical oxidant required to break down organics. COD is an indicator of the concentration of organics in water. The COD test can be completed in a few hours and is frequently substituted for BOD. COD levels are usually greater than BOD for a given wastewater.

Cold Climate Limitations
Cold temperatures, ice cover, plant dormancy, equipment performance, ice buildup and reduced microbial action create design challenges for cold weather wastewater treatment.

Combined Sewers
Sewer systems in which the storm water and sanitary waste are combined. A benefit is that non-point pollution flushed from the watershed during moderate rain is treated, but the system can be overwhelmed during severe storms, resulting in untreated waste being flushed into the receiving waters as a combined sewer overflow (CSO).

Constructed Wetland
A wetland constructed for the purpose of pollution control and waste management. The flow rate, residence time and other factors are controlled to enhance the removal of BOD, SS, and N. A waterproof barrier is usually placed below the substrate to isolate the wastewater form the groundwater. Plants such as cattails, bulrushes and reeds provide a dense cover and an oxygenating substrate for bacteria in the root zone.

Detention Time
(retention time; residence time) The average period of time wastewater stays in a treatment system. Detention times vary for different types of wastewater treatment systems and can range from hours to weeks.

Ecological Engineering
The design, management or reconstruction of sustainable ecosystems that serve human needs such as providing clean water and food while requiring low energy inputs. Ecological engineering has enhanced our understanding of environmental problems such as wastewater treatment, wetlands damage and mitigation, the effect of nonpoint pollution on ecosystems and ecosystem restoration.

Facultative Ponds
A wastewater treatment pond that includes surface aeration and algal photosynthesis for oxygen replenishment.

Free Water Surface Wetland (FWS)
A lined basin or channel with porous plant substrate and wetland vegetation in which the shallow water is exposed to the air.

"I&A"

Innovative and Alternative. A term defined by the EPA to describe non-conventional technologies. "Alternative systems" are fully proven systems that reclaim or reuse wastewater, productively recycle wastewater components, recover energy, or eliminate the discharge of pollutants. A variety of wastewater treatment systems have been included in the definition, including land treatment, aquaculture, containment ponds, and on-site treatment using small diameter or vacuum sewers.

N: Nitrogen
This nutrient is present in various forms in wastewater, principally ammonia and nitrate.

Natural Systems
Ecologically based biological wastewater treatment systems such as constructed wetlands having minimal dependence on mechanical elements.

Onsite
Local wastewater treatment for a single house or small community.

Overland Flow Land Treatment
Partially treated wastewater is applied to relatively impermeable soils at the top of a grass-covered gradient. The waste is cleaned by the vegetation and microbial action, and excess water is captured at the bottom of the slope.

P: Phosphorus
This nutrient, which is present in wastewater, acts as a fertilizer for algae in surface waters.

Primary Wastewater Treatment
Removal of sand, grit, and larger solids from wastewater by screens, settling tanks and/or skimming devices.

Sanitary Wastewater (domestic)
Wastewater, including toilet, sink, shower and kitchen flows, originating from human domestic activities.

Secondary Wastewater Treatment
Biological removal or organics and solids from wastewater. Secondary wastewater effluent limits are generally 30 mg/1 BOD5 and 30 mg/1 of TSS.

Sludge
Biosolids remaining after secondary or tertiary treatment. Sludge may be applied to agricultural fields as a soil amendment, composted or palletized.

Storm Water Run-Off (SRO)
The pulse of surface water following a rainstorm. The water carries sediment, gas, oil, animal feces, glass and other waste from the watershed to receiving waters creating a difficult urban/suburban wastewater problem.

Subsurface Flow Wetland (SF)
A type of constructed wetland in which primarily treated waste flows through deep gravel or other porous substrate planted with wetland vegetation. The water is not exposed to the air, avoiding problems with odor and direct contact.

Tertiary Wastewater Treatment (Advanced)
Biological or chemical polishing of wastewater to remove organics, solids and nutrients. Tertiary wastewater effluent limits are generally 10 mg/1 BOD5 and 10 mg/1 TSS.

TSS
Total suspended solids in wastewater.

Turbidity
A measure of the clarity of water. Typically turbidity is measured by determining light transmission through the water.

Ultraviolet Disinfection (UV)
A disinfection method in which final wastewater effluent is exposed to ultraviolet light to kill pathogens and microorganisms.

Wastewater

The liquid-borne waste products of domestic, industrial, agricultural and manufacturing activities. In a community, an average of 50 to 100 gallons of wastewater is generated per person per day.