

Lehigh County Authority Wastewater Plant

Glossary of Common Wastewater Treatment Terms

Anaerobic Digestion – A biological process that produces a gas principally composed of methane (CH₄) and carbon dioxide (CO₂) otherwise known as biogas. These gases are produced from organic wastes such as livestock manure, food processing waste, etc.

A/O Process – The A/O Process (anoxic/oxic) improves upon the activated sludge process by using an anaerobic selector to develop a selective biomass that is naturally reoccurring in nearly all treatment plants. The process enhances phosphorus removal while reducing sludge-bulking organisms.

BOD (Biochemical Oxygen Demand) – The amount of oxygen used for biochemical oxidation by a unit volume of water at a given temperature and for a given time. BOD is an index of the degree of organic pollution in water.

DAF (Dissolved Air Flotation) – A unit which utilizes flocculants such as polymers and metal salts (aluminum sulfate and ferric chloride) to form floc particles. These floc particles are transported to the top of the unit via air bubbles and are scraped into a sludge collection system. The sludge is dewatered and disposed of in a sanitary landfill or recycled in a rendering plant.

Effluent – A discharge of liquid waste, as from a factory or nuclear plant.

Mesophilic Digestion – The most commonly used process for anaerobic digestion, in particular waste sludge treatment. Decomposition of the volatile suspended solids (VSS) is around 40% over a retention time of 15 to 40 days at a temperature of 30 to 40°C, which requires larger digestion tanks.

Molybdenum – A hard, silvery-white metallic element used to toughen alloy steels and soften tungsten alloy. An essential trace element in plant nutrition, it is used in fertilizers, dyes, enamels, and reagents. Atomic number 42; atomic weight 95.94; melting point 2,617°C; boiling point 4,612°C; specific gravity 10.22 (at 20°C); valence 2, 3, 4, 5, 6.

Parshall Flume – A Parshall flume has a special shaped open channel flow section which may be installed in a ditch, canal, or lateral to measure the flow rate. The Parshall flume is a particular form of venturi flume and is named for its principal developer, the late Mr. Ralph L. Parshall (Water Measurement Manual, U.S. Bureau of Reclamation, 1984).

PHC (Petroleum Hydrocarbon) – Any organic compound composed solely of the elements hydrogen and carbon. Petroleum is a complex mixture of hydrocarbons

TKN (Total Kjeldahl Nitrogen) – represents the nitrogen equivalent available from ammonia and organic nitrogen. TKN levels are important for assessing the amount of nitrogen available for biological activities.

TOC (Total Organic Content) – a test that directly measures the organic content of water.

TSS (Total Suspended Solids) – solids which are retained by a glass fiber filter and dried to constant weight at 103-105 degrees C.