CITIZEN'S ACADEMY
TOWN OF LA PLATA

Glossary

Artesian aquifer	Aquifer containing water under pressure that will cause it to flow upwards in a well without pumping
Asset Management	A strategy to get the most benefit out of the capital investment made by the Town in building a water and sewer system
Aquifers	Layers of sands and gravel that readily produce ground water under hydrostatic pressure when the recharge area is higher than the point of withdrawal
BOD	Biochemical oxygen demand - A measure of the amount of oxygen used by bacteria in the water
CCWRAC	Charles County Water Resource Advisory Committee appointed by the County Commissioners in 2006 to evaluate the water resources
Chlorination	A disinfection technique used in water treatment, involving the addition of Cl_2 gas, chlorine dioxide, sodium hypochlorite or calcium hypochlorite
Cone of depression	The lowering of the static level in the aquifer surrounding a well when it is pumping water
Confining units	Layers of silts and clay that act as barriers to water flow between aquifers and causes pressure to build up in the aquifer
Dechlorination	The removal of chlorine from drinking water before it is discharged into surface waters
Denitrification	The chemical reduction of nitrate and nitrite to gaseous forms: nitric oxide, nitrous oxide and dinitrogen: NO_3^- à NO_2^{-a} NO à N_2 Oà N_2
Desalinazition	The process of removing the salt from saltwater to make it usable as a source of potable water
Disinfection	The removal or inactivation of pathogenic organisms

Dewatering of sludge - A mechanical unit operation which increases the dry solids concentration of the sludge from 3.9 percent after digestion to 25 – 30 percent thereby ensuring that the sludge effectively behaves as a solid for handling purposes.

Downdip area	Area east of the fall line with unconsolidated sediment layers that will produce ground water
Drawdown	Decrease in level below the static water level in a well when pumping water
Dry weather flow	The combination of wastewater and dry weather infiltration flowing in a sanitary sewer during times of low precipitation
EDU	An equivalent dwelling unit is the amount of water used by a typical single family residence
Effluent	The outflow from a sewage treatment plant
Equalization basin	A holding tank within which variations in sewage inflow rate and liquid nutrient
Fall line	The point where the Piedmont uplands and the Atlantic Coastal Plains lowlands intersect
Filtration	A process whereby suspended and colloidal matter is removed from water and wastewater by passage through a granular medium
Flocculation	The water treatment process in which particle collisions are induced in order to encourage the growth of larger particles
Flow	Movement of water through a system
Fluoridation	The addition of fluoride to drinking water within the limits 0.7 – 1.2 $mg/1^{-1}$ to help prevent the occurrence of tooth decay
GAP	Groundwater appropriations permit issued by MDE to authorize withdrawal of a given amount of water on a daily basis
GPD	Gallons per day
Ground water	Water in confined aquifers under pressure greater than atmospheric that can be withdrawn to provide potable water
Hardness in water	The sum of the calcium and magnesium ion concentrations. A hard water will leave a scale on the inside of kettles and will form a scum rather than a lather with soap

ISO	The Insurance Services Office was created by a group of insurance companies to evaluate the effectiveness of a community's fire protection
MDE	Maryland Department of the Environment controls the withdrawal of ground water from the available aquifers
MFF	The Major Facility Fee is charged by the Town of La Plata at the time a building permit is issued to pay for the cost of providing the water and sewer capacity needed to serve the new construction
MGD	Million gallons per day usage
MGS	Maryland Geological Survey charged with evaluating potential sources of ground water and measuring ground water levels
MLSS	Mixed liquor suspended solids - The microbial suspension in the aeration tank containing living and dead micro-organisms and inert biodegradable matter, the operating concentration of which may vary in the range 1500 to 4000 mg/1
Membrane process	The removal of dissolved solids from water by passage through a membrane of minute pore diameter ($3*10^{-10}$ m)
NFPA	National Fire Protection Association sets standards for fire protection
Nitrification	The conversion of the ammonium ion, NH_4^+, into the nitrite ion, NO_3^+.
Non-point source pollution	Pollution from diffuse and not easily identifiable sources, e.g. a field
Nutrient removal	Tertiary treatment introduced to remove some of the trace compounds and elements contained in most domestic wastewaters, e.g. inorganic ammonia, nitrates, phosphates and sulfates, which are little affected by conventional treatment processes
Odor threshold	The minimum level or value of an odor necessary to elicit a public response
Oxidation	A process in which there is loss of electrons from an element or ion
Permeability	The rate at which a fluid flows through a porous medium under the hydraulic head operating within the medium. Usually, the greater the porosity, the greater the permeability

pH	A measure of the acidity or basicity of a solution i.e. the negative of the logarithm of the hydrogen ion concentration
Point-source pollution	Pollution from sources which are easily identified
Porosity	The proportion of void spaces in the soil. The porosity of fine soils, e.g. clay, is low, whereas that of coarser gravelly soils is higher
Potentiometric surface	The level that water will rise to in a well above the top of a confined aquifer – sometimes referred to as the static level
Precipitation	The depth of rainfall plus the water equivalent of snow, sleet and hail falling during a given measurement period
PSI (Pressure)	A force measured in pounds per square inch (psi) generated either by the force of gravity or by mechanical means
Recharge	Replacing water that is withdrawn from an aquifer
Recovery	Rate at which water level in a well returns to the static natural level after pumping has stopped
Residual Pressure	Pressure remaining at a point in a water system with water flowing
Retention time	The length of time a wastewater remains in a clarification tank, an important design parameter in the optimization of settling of suspended solids
Return activated sludge	Settled activated sludge from the clarifier which is returned to the aeration tank to ensure an active population of microbes will be mixed with the incoming wastewater
Reverse osmosis	A membrane process in which solutions of two different concentrations are separated by a semi-permeable membrane. An applied pressure gradient greater than the osmotic pressure ensures flow from the more concentrated to the less concentrated solution
Sewage	Wastewater and other refuse such as feces, carried away in sewers
Sewerage	System of pipes and treatment plants which collect and dispose of sewage in a town
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and sedimentation after water or wastewater treatment.

Sludge bulking	A phenomenon caused when a large number of filamentous micro-organisms present in the mixed liquor interferes with the compaction of the floe and produces a sludge with a poor settling rate.
Sludge conditioning	Addition of chemicals, polyelectrolytes or heat treatment to improve the rate of dewatering.
Sludge dewatering	The mechanical unit operation used to reduce the moisture content of sludge to 70 – 75 percent and thus ensure that the remaining sludge residue effectively behaves as a solid for handling purposes.
Sludge stabilization	The process of destroying or inactivating pathogens
Static Pressure	The pressure measured in a water system without any water flowing
Static Water Level	Natural water level in a well with no pumping taking place
Surface water	Water in ponds, lakes, rivers or streams that can be withdrawn and treated to be used as a potable water source
Suspended solids	Solids in suspension in a water or wastewater which can be removed by filtration
Sustainable development	Projects undertaken with care to preserve and manage resources, use genetic engineering with responsibility, search for technical alternatives to existing energy sources and control land, water and air pollution
Updip area	Area west of fall line composed of consolidated rock
Thickening of sludge	A process which facilitates disposal of sludge by increasing the solids content to approximately 4 per cent
Transmissivity	A measure of the rate of flow of water through a water-bearing rock or confined aquifer
Turbidity	The clarity of water, i.e. a measure of the accumulation of collidal particles, determined by light transmission through the water
USGS	United States Geological Service responsible for evaluating water sources and measuring ground water levels nationwide

Watershed	Line between the headstreams of river systems, dividing one catchment from another.
Water Hammer	The shock applied to a water system when high flow is interrupted suddenly
Water table	The level of water within the soil at which the pore water pressure is equal to the atmospheric pressure
Well Field	A number of wells in the same aquifer that are close enough to each other for the drawdown from one to affect the static level in the others
WSSC	The Washington Suburban Sanitary Commission provides water and sewer to suburban counties surrounding Washington DC
Yield	The maximum amount of water a well will produce from a given aquifer