

Definitions

Pollution

Undesirable change in the physical, chemical, or biological characteristics of the air, water, or land that can harmfully affect the health, survival, or activities of human or other living organisms

Water Pollution

Degradation of a body of water by a substance or condition which adversely impacts the quality of water

Petroleum Pollution

The waste produced through the production, use, and disposal of petroleum-based products

Sewage Pollution

The waste and wastewater produced by residential and commercial sources

Solid wastes

Any unwanted or discarded material that is not a liquid or a gas. Includes organic wastes, paper products, metals, glass, plastic, cloth, brick, rock, soil, leather, rubber, yard wastes, and wood, but does not include sewage and hazardous materials

Nuclear Energy

Energy produced by particles such as those released by the sun or energy that comes from splitting atoms of radioactive materials, such as uranium

Radiation Pollution

Pollution associated with the production, use, or disposal of radioactive materials

Thermal Pollution

A reduction in water quality caused by increasing its temperature, often due to disposal of waste heat from industrial or power generation processes

Toxic Chemicals

Substance that can cause severe illness, poisoning, birth defects, disease, or death when ingested, inhaled, or absorbed by living organisms

Toxic Waste

Waste that has a toxic effect on living organism

Polychlorinated biphenyls (PCBs)

A hazardous environmental pollutant that has various industrial applications and tends to accumulate in animal tissues

Trichloroethene (TCE)

Also known as trichloroethylene)(TCE) A toxic volatile organic compound often used as a solvent that can cause adverse health affects

Fertilizers

Any organic or inorganic material of natural or synthetic origin that is added to a soil to supply elements essential to plant growth

Pesticides

The general term applied to substances used to control a pest including: weeds, insects, fungi, mites, algae, rodents, etc.

Animal Wastes

Animal manure, litter or bedding; water that has contacted animal manure, litter, or bedding; water from washing, flushing, or cleaning animal pens; and liquid or soil waste from pens used at kennels, animal hospitals, poultry processing facilities, dairies or rendering plants.

Antifreeze

A toxic chemical liquid that is added to a vehicle's radiator to protect the engine from freezing during cold weather and overheating during hot weather

Nonpoint source pollution (NPS)

Pollution discharged over a diffuse area , such as city streets, neighborhood yard, and agricultural fields and not from one specific location

Point source pollution (PS)

Water pollution coming from a identifiable single point as a wastewater treatment plant or manufacturing factory

Thermal Water Pollution

A form of water pollution which occurs as a result in an increase in the temperature of the water

Cholera

A highly dangerous and infectious disease caused by cholera bacterium (*Vibrio cholera*) which is transmitted through infected food and water. It causes a profuse, painless, watery diarrhea resulting in dehydration, weakness and death

Dysentery

A condition of diarrhea caused by ingestion of contaminated food or water

Typhoid Fever

A bacterial infection caused by the bacterium *Salmonella Typhi* (*S. Typhi*); often transmitted by contaminated water, food, or milk

Primary Sludge

The primary treatment in a wastewater treatment plant

Secondary treatment

Second step in most waste treatment systems, in which bacteria break down the organic parts of sewage wastes; usually accomplished by bringing the sewage and bacteria together in trickling filters or in the activated sludge process

Secondary sludge

The sludge produced from the secondary clarifier in a wastewater treatment plant

Sludge

Solid matter that settles to the bottom of sedimentation tanks in a sewage treatment plant and must be disposed of by digestion or other methods or recycled to the land

Biodegradable

A material capable of being decomposed (broken down) by natural biological processes

Pretreatment

1) under the Clean Water Act (CWA), the required alteration and/or reduction of certain water pollutants in a waste stream before the wastewater is discharged into a Publicly Owned Treatment Works (POTWs). The purpose of this requirement is to prevent discharges that will reduce the efficiency of the water treatment facility or to treat materials that are not treated or inadequately treated by the facility. (2) Treatment of feed water prior to desalting, for example, removal of iron and manganese prior to electro dialysis

Wastewater

Water that has been used for domestic or industrial purposes

Septic system

A domestic wastewater treatment system

Hydrologic cycle

The continuous cycle of the earth's water supply from the atmosphere to the earth and back which includes precipitation, transpiration, evaporation, runoff, infiltration, and storage in water bodies and groundwater

Groundwater

Water that flows or seeps downward and saturates soil or rock

Condensation

The process of a liquid becoming vapor

Precipitation

Rain, snow, hail, sleet, dew, and frost

Transpiration

Process by which water that is absorbed by plants, usually through the roots and evaporated into the atmosphere from plant surfaces, such as leaf pores

Surface runoff

Precipitation, snow melt, or irrigation in excess of what can infiltrate into soil surface that flows across the land surface

Surface water

Water that is on the Earth's surface, such as in a stream, river, lake, or reservoir

Conservation

To protect from loss and waste

Sewage

The waste and wastewater produced by residential, commercial and industrial sources and discharged into sewers

Sewer

A system of underground pipes that collect and deliver wastewater to treatment facilities or streams

Ecosystem

A community of plants, animals, and microorganisms that are linked by energy and nutrient flows and that interact with each other and with the physical environment

Effluent

Any substance, particularly a liquid that enters the environment from a point source

Infiltration

Movement of water from the land surface and into the soils profile or sub surface

Erosion

The physical process in which a material is worn away by water or air

Interflow

Water that travels laterally or horizontally through the aeration zone during or immediately after a precipitation event and discharges into a stream or other body of water

Percolation

The movement of water through the subsurface soil layers, usually continuing downward to the groundwater or water table reservoirs

Leaching

The process by which soluble materials in the soil, such as salts, nutrients, pesticide chemicals or contaminants transported down through the soil profile

Vadose zone

The subsurface zone between the water table (Zone of Saturation) and the land surface where some of the spaces between the soil particles are filled with air. Also referred to as the Unsaturated Zone or, less frequently, the Zone of Aeration

Water table

The top of the water surface in the saturated part of an aquifer

Aquifer

A geologic formation(s) that is water bearing

Recharge

Water added to an aquifer. For instance, rainfall that seeps into the ground

Saturated

The condition of a liquid when it has taken into solution the maximum possible quantity of a given substance at a given temperature and pressure or in the case of the soil, a condition, in which, the soil or rock layers are completely full of water

Aquitards

A saturated, but poorly permeable bed that impedes ground-water movement and does not yield water freely to wells, but which may transmit appreciable water to or from adjacent aquifers and where sufficiently thick, may constitute an important ground-water storage unit. Aquitards are characterized by values of leakance that may range from relatively low to relatively high. A really extensive aquitards of relatively low leakance may function regionally as boundaries of aquifer flow systems

Element

Matter composed of one atom type

Molecule

Smallest physical unit of an element or compound

Compound

Molecule with two or more elements

Surface Tension

A phenomenon caused by a strong attraction towards the interior of the liquid action on liquid molecules in or near the surface in such a way to reduce the surface area. The tension that results is usually expressed in dynes per centimeter (cm) or ergs per square centimeter

Universal solvent

A substance that has the ability to dissolve both bases and acids, such as water

Hydrogen Bond

The bond formed when the positive end of one polar molecule, such as water, is attracted to the negative end of another polar molecule

Atom

The smallest component of an element having the chemical properties of the element

Oxygen

A chemical element consisting of eight protons, eight neutrons and eight electrons which is colorless, odorless, and tasteless. Oxygen is essential for life processes

Hydrogen

A chemical element consisting of one proton and one electron

Heat Capacity

The amount of heat required to increase the temperature of a substance one Celsius degree

Salinity

The concentration of dissolved salts, such as sodium chloride and water

Parts per thousand (PPT)

The number of “parts” by weight of a substance in thousand parts of water (volume) of a liquid

Basins

A watershed or catchment basin is the area of land whose water drains into a specified body of water, such as a river, lake, sea, or ocean

Continental Shelf

The submerged shelf of land that slopes gradually from the exposed edge of a continent to where the drop-off to the deep seafloor begins

Continental Slope

The ocean floor from the continental shelf to the continental rise or oceanic trench, usually to a depth of about 660 feet (200 meters)

Abyssal Plain

The flattened floor of the deep ocean

Oceanic Ridges

Long, narrow chains of underwater mountains

Oceanic Trenches

A long, narrow valley under the sea that contains some of the deepest points on earth

Tides

The tides is the regular rising and falling of the ocean’s surface caused by changes in gravitational forces

Gravity

Force of attraction that is felt between two masses

High Tide

The maximum height reached by a rising tide

Low Tide

The point of a tide at which the water is the lowest and opposite of a high tide

Centripetal Forces

A centripetal force is a force pulling an object toward the center of a circular path as the object goes around the circle

Tidal Range

The difference in height between mean low tide and mean high tide

Ebbing

Outgoing or falling tide

Flowing

Incoming or rising tide

Spring tides

Tides with the greatest range between highs and lows, usually occurring during the full or new moon

New moon

A phase of the moon in which none of the moon's face is visible (when the moon is dark)

Full moon

A phase of the moon in which the moon's face is fully illuminated and visible

Neap tides

A tide that occurs when the difference between high and low tide is least; the lowest level of high tide. Neap tide comes twice a month, in the first and third quarters of the moon. Contrast with Spring Tide

Tidal Cycles

The periodic changes in the intensity of tides caused primarily by the varying relations between the earth, moon, and sun

