

Water Quality and Waste Management Glossary

Activated Carbon Filter: Water treatment process to remove taste, odor, some organic compounds, and radon.

Adsorption: retention of a substance by soil particles.

Aerobic: in the presence of or requiring oxygen.

Agri-chemical: chemicals (fertilizers and pesticides) used in agricultural production.

Algal Bloom: large, visible masses of algae found in bodies of water during warm water.

Alkalinity: capacity of water to neutralize acids by its content of bicarbonates, carbonates, or hydroxides.

Ambient Monitoring: performed to determine existing environmental conditions or contaminant levels in the environment, against which future conditions can be compared.

Anaerobic (Anoxic): in the absence of oxygen.

Aquifer: water-bearing formation of rock or soil that will yield useable supplies of water. May be classified as confined or unconfined.

Artesian (Flowing) Aquifer: aquifer in which water is held under pressure by confining layers, forcing water to rise in wells above the top of the aquifer.

Assimilative Capacity: natural ability of soil and water to use and decompose potential pollutants without harmful effects to the environment.

Available Nitrogen: amount of nitrogen present as either nitrate or ammonium, forms which can be readily taken up by plants.

Available Water: the portion of water in soil that can be readily absorbed by plant roots.

Background Level: amount of a substance which occurs naturally in the environment.

Bacteria: microscopic one-celled organisms which live everywhere and perform a variety of functions. While decomposing organic matter in water, bacteria can greatly reduce the amount of oxygen in the water.

Baler: machine used to compress and bind recyclables, such as aluminum, paper, corrugated cardboard and plastics.

Bentonite: highly plastic clay consisting of the minerals montmorillonite and beidellite that swells when wet and is often used as a lining material to seal landfills and lagoons.

Best Management Practice (BMP): structural or managerial technique recognized as the most effective and practical means of controlling pollution for an agricultural, urban, forested, or mining area.

Biochemical Oxygen Demand (BOD): laboratory measurement of the amount of oxygen consumed by microorganisms while decomposing organic matter in a product. BOD levels are indicative of the effect of the waste on fish or other aquatic life which require oxygen to live, and though not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Biodegradable: capable of being broken down (decomposed) by microorganisms.

Black Water: liquid and solid human body waste and the carriage water generated by toilet use.

Bottle Bill: law requiring deposits on beverage containers (see Container Deposit Legislation).

BTX: a test for benzene, toluene, and xylene, three organic compounds characteristically present in gasoline.

Buffer Zone: neutral area which acts as a protective barrier separating two conflicting forces. An area which acts to minimize the impact of pollutants on the environment or public welfare. For example, a buffer zone is established between a composting facility and neighboring residents to minimize odor problems.

Bulky Waste: large items of refuse including, but not limited to, appliances, furniture, large auto parts, non-hazardous construction and demolition material, trees, branches and stumps which cannot be handled by normal solid waste processing, collection and disposal methods.

Buy-Back Center: facility where individuals bring recyclables in exchange for payment.

Carcinogen: substance which causes cancer.

Chemical Oxygen Demand (COD): laboratory measurement of the amount of oxygen used in chemical reactions that occur in water as a result of the addition of wastes. A major objective of conventional wastewater treatment is to reduce the chemical and biochemical oxygen demand.

Chlorination: addition of chlorine as a means of disinfecting drinking water or wastewater.

Co-compositing: simultaneous composting of two or more diverse waste streams.

Coliform Bacteria: microorganisms which typically inhabit the intestines of warm-blooded animals. They are commonly measured in drinking water analyses to indicate pollution by human or animal waste.

Commercial Waste: materials originating in wholesale, retail, institutional or service establishments such as offices, stores, markets, theaters, hotels and warehouses.

Commingled Recyclables : mixture of several recyclable materials in one container.

Compactor: power-driven device used to compress materials to smaller volume.

Composting: controlled microbial degradation of organic waste yielding an environmentally sound product with value as a soil amendment.

Confined Aquifer: water-bearing formation whose upper boundary is a layer which does not transmit water readily.

Contaminant: any physical, chemical, biological, or radiological substance causing an impurity in the environment.

Corrosive: capable of eating away materials and destroying living tissue on contact.

Corrugated: structural paper or cardboard shaped in parallel furrows and ridges for rigidity.

Curbside Collection: program where recyclable materials are collected at the curb, often from special containers, to be taken to various processing facilities.

Deactivation: process in which a pesticide adheres to a soil particle or some organic material so tightly that it is no longer biologically available.

Decomposition: breaking down into component parts or basic elements.

Decomposition Gases: produced in the breakdown of garbage or other material. Some, such as methane, are flammable.

Degradable: capable of being chemically reduced or broken down.

Denitrification: biochemical conversion of nitrate (NO₃) to nitrite (NO₂), ammonia (NH₃), and free nitrogen (N), as in soil by microorganisms.

Dioxins: heterocyclic hydrocarbons that occur as toxic impurities, especially in pesticides.

Discharge: flow of surface water in a stream or the flow of ground water from a spring, ditch, or flowing artesian well.

Disposable: manufactured to be used for a short time and then thrown away; not durable or repairable.

Dissolved Oxygen (DO): oxygen dissolved in water and readily available to fish and other aquatic organisms.

Diversion Rate: measure of the amount of waste material being diverted for recycling compared with the total amount previously thrown away.

Drawdown: vertical drop of the water level in a well during pumping.

Drop-off Center: method of collecting recyclable or compostible materials in which materials are taken by individuals to collection sites and deposited into designated containers.

Ecosystem: community of animals and plants and the physical environment in which they live.

Effluent: discharge or emission of a liquid or gas.

Energy Recovery: conversion of waste energy, generally through the combustion of processed or raw refuse (incineration), to produce steam.

Erosion: natural breakdown and movement of soil and rock by water, wind, or ice. The process may be accelerated by human activities.

Escherichia coli (E. coli): species of coliform bacteria that inhabit intestines of people and animals.

Eutrophication: degradation of water quality due enrichment by nutrients, primarily nitrogen (N) and phosphorus (P), which results in excessive plant (principally algae) growth and decay. Low dissolved oxygen (DO) in the water is a common consequence.

Evapotranspiration (ET): loss of water to the atmosphere from the earth's surface by evaporation and by transpiration through plants.

Explosive / Reactive: capable of causing an explosion or releasing poisonous fumes when exposed to air, water, or other chemicals.

Formulation: the combination of active and inactive (inert) ingredients which make up a pesticide.

Fumigant: gaseous material used to destroy insects, pathogens, or other pests in soil or grain bins.

Fungicide: substance that kills fungi.

Garbage: waste food that is thrown away, generally defined as wet food waste. The term is also used to describe all products discarded, regardless of their reusability or recyclability.

Geographic Information System: computerized database system containing natural resources and land use data that can be used to analyze and display information in spatial, or map, format.

Giardiasis: presence of the Giardia lamblia protozoan in the human small intestine which can cause diarrhea.

Grey Water: wastewater other than sewage, such as sink or washing machine drainage.

Ground Water: water in the saturated zone (below the water table).

Half-life: time required for one-half of a specified substance to decompose.

Hammermill: type of crusher or shredder used to break up waste materials into smaller pieces.

Hardness: characteristic of water which describes the presence of dissolved minerals. Carbonate hardness is caused by calcium and magnesium bicarbonate; noncarbonate hardness is caused by calcium sulfate, calcium chloride, magnesium sulfate, and magnesium chloride.

Hazardous Waste: solid, liquid, or gaseous substance which, because of its source or measurable characteristics, is classified under state or federal law as potentially dangerous and is subject to special handling, shipping, and disposal requirements.

Head: the height of a column of water above a standard datum such as mean sea level.

Health Advisory (HA): non-regulatory, health-based reference level of drinking water contaminants at which adverse health effects are believed to be minimal. HA levels are established for 1-day, 10-day, longer-term, and lifetime exposure periods, and they include large safety margins.

Heavy Metals: those metals (elements with high density, malleability, and electrical and thermal conductivity) that have high specific gravity and high atomic mass, such as lead, cadmium, zinc, copper, silver, and mercury. These may be found in the waste stream as part of discarded items such as batteries, lighting fixtures, colorants and inks.

Herbicide: chemical used to destroy or inhibit undesirable plant growth.

High Grade Paper: relatively valuable paper such as computer printout, white ledger, and tab cards. Also used to refer to industrial trimmings at paper mills that are recycled.

Household Hazardous Waste: discarded or unused portions of home cleaning products, workshop and outdoor chemicals, automotive fluids, and personal care products that contain toxic chemicals. Products labeled WARNING, CAUTION, POISONOUS, TOXIC, FLAMMABLE, REACTIVE, or EXPLOSIVE are considered hazardous.

Humus: organic materials resulting from decay of plant or animal matter. Also referred to as compost.

Hydrologic Cycle: the movement of water in and on the earth and atmosphere through processes such as precipitation, evaporation, runoff, and infiltration. **Hydrology:** science dealing with the properties, distribution, and flow of water on or in the earth.

Hydrolysis: reaction of a water molecule with another larger molecule, resulting in the splitting of the larger molecule.

Ignitable: capable of burning or causing a fire.

In-vessel Composting: method in which the compost material is continuously and mechanically mixed and aerated in a large, contained area.

Incinerator: facility in which the combustion of solid waste takes place.

Industrial Waste: materials discarded from industrial operations or derived from manufacturing processes.

Infiltration: entry of water from precipitation, irrigation, or runoff into the soil profile.

Inorganic Chemicals: natural or synthetic chemicals that contain no carbon.

Insecticide: substance that kills insects.

Institutional Waste: material originating in schools, hospitals, prisons, research institutions, and other public buildings.

Integrated Solid Waste Management: practice of using several alternative waste management techniques to manage and dispose of specific components of the municipal waste stream. Waste management alternatives include source reduction, recycling, composting, energy recovery, and landfilling.

Intermediate Processing Center (IPC): type of materials recovery facility (MRF) that processes residentially collected mixed recyclables into new products available for market; often used interchangeably with MRF.

Landfill: see Sanitary Landfill.

Leaching: movement through soil of dissolved or suspended substances in water.

Lethal Dose (LD): amount of a substance required to cause death in an organism.

Loading: amount of a substance entering the environment (soil, water, or air).

Manual Separation: sorting of recyclables or compositable materials from waste by hand sorting.

Mass Burn: municipal waste combustion technology in which solid waste is burned in a controlled system without prior sorting or processing.

Materials Market: combination of manufacturing interests which buy recyclable materials and process them for reuse. The demand for goods made of recycled materials determines the economic feasibility of recycling and resource recovery.

Materials Recovery Facility (MRF): facility that separates and processes recyclable materials for sale to an end user.

Maximum Contaminant Level (MCL): enforceable EPA standard for the maximum permissible concentration of a contaminant in public water supplies. An MCL is set after considering health effects as well as the feasibility and cost of analysis and treatment of the regulated contaminant.

Maximum Contaminant Level Goal (MCLG): preliminary standard based entirely on health effects which is used by EPA to establish the MCL for a contaminant. For a chemical believed to cause cancer, the MCLG is zero.

Mechanical Separation: sorting of waste into various components using mechanical means, such as cyclones, trommels, and screens.

Metabolites: breakdown chemical products resulting when a pesticide passes through a biological system.

Methane: odorless, colorless, flammable and explosive gas produced by municipal solid waste undergoing anaerobic decomposition. Methane is emitted from municipal solid waste landfills.

Mineral Water: contains large amounts of dissolved minerals such as calcium, sodium, magnesium, and iron. Some tap waters contain as many or more minerals than some

commercial mineral waters. There is no scientific evidence that either high or low mineral content water is beneficial to humans.

Mineralization: microbial conversion of an element from an organic (containing carbon) to an inorganic (not containing carbon) state.

Modular Incinerator: small-scale waste combustion units prefabricated at a manufacturing facility and transported to the MWC facility site.

Most Probable Number (MPN): statistical expression for estimating the number of microorganisms in a culture or a volume of water.

Mulch: natural or artificial layer of plant residue or other material covering the land surface which conserves soil moisture, holds soil in place, aids in establishing plant cover, and minimizes temperature fluctuations.

Municipal Solid Waste (MSW): non-hazardous discarded material generated in residential, commercial, institutional, and light industrial settings. It is defined by local governments, and in general does not include automobile oil, tires, lead-acid batteries, hazardous or infectious wastes, demolition debris, etc.

NIMBY: acronym for "Not In My Back Yard" which is an expression of resident opposition to the siting of a solid waste facility based on the particular location proposed.

Nitrification: biochemical oxidation of ammonia (NH_3), ammonium (NH_4), or atmospheric nitrogen (N) to nitrate (NO_3) or nitrite (NO_2).

No Observeable Adverse Effect Level (NOAEL): chemical exposure dose or level producing no observeable adverse effect in long-term toxicity studies. This level is used to establish a tolerance for human consumption.

Nondischarge Systems : wastewater disposal systems that do not discharge to surface waters, such as spray irrigation, land application, or conventional septic systems.

Nonpoint Source (NPS) Contamination: : water contamination derived from diffuse sources such as construction sites, agricultural fields, and urban runoff.

Nuisance Contaminant: constituents in water which are not normally harmful to health but may cause offensive taste, odor, color, corrosion, foaming, or staining.

Nutrient: element essential for plant or animal growth. Major nutrients include nitrogen, phosphorus, carbon, oxygen, sulfur, and potassium.

Organic Compound: any carbon-based substance, including some petroleum products, solvents, pesticides, and halomethanes. Volatile organic compounds (VOCs) are those which are readily vaporized; a number of these are known or probable carcinogens.

Oxygen Demand: materials such as food waste and dead plant or animal tissue that use up dissolved oxygen in the water when they are degraded through chemical or biological processes. Chemical and biochemical oxygen demand (COD and BOD) are measures of the amount of oxygen consumed when a substance degrades.

Package Treatment Plant: prefabricated, small-scale wastewater treatment system used in subdivisions or trailer parks.

Pathogen: disease-causing biological agent such as a bacterium, virus, or fungus.

Percolation: movement of water through soil or rock.

Permeability: capacity of soil, sediment, or porous rock to transmit water.

Persistence: resistance to degradation as measured by the period of time required for complete breakdown of a material. Depends on temperature, pH, soil type, light intensity, etc.

Pesticide: substance used for controlling, destroying, or repelling a specific pest. Includes fungicides, herbicides, insecticides, nematicides, rodenticides, defoliant, and plant growth regulators.

Photodegradeable: capable of being broken down (decomposed) by a chemical reaction initiated by direct exposure to the sun's ultraviolet radiation.

pH: numerical measure of acidity, with a scale of 0 to 14. Neutral is pH 7, values below 7 are acidic, and values above 7 are alkaline.

Point-of-entry(POE): water treatment system located at the entry point to the home which treats all water used in the home.

Point-of-use: water treatment system located at the tap which treats only water used from the tap.

Point Source Contamination: water contamination from specific sources such as leaking underground storage tanks, landfills, industrial waste discharge points, or chemical mixing sites.

Pollution: presence of a contaminant to such a degree that the environment (land, water, or air) is not suitable for a particular use.

Polychlorinated Biphenyl (PCB): hazardous compound (suspected carcinogen) used for electrical insulation and heating/cooling equipment which has been found in air, soil, water, and fish across the country.

Polyethylene Terephthalate (PET): recyclable plastic used to make bottles such as soda bottles. Recycled PET is used in car bumpers, furniture, skis, surfboards, carpet yarn, polyester fiber, films and sheets, and molded parts.

Polyvinyl Chloride (PVC): common plastic material which releases hydrochloric acid when burned.

Post-Consumer Recycling: reuse of materials generated from residential and commercial waste; excludes recycling of material from industrial processes that has not reached the consumer, such as glass broken in the manufacturing process.

Post-Consumer Waste: material discarded by a business or residence that has fulfilled its useful life.

Potable: suitable for drinking.

Primary Drinking Water Standards: enforceable EPA standards which establish MCLs for drinking water contaminants after considering health effects and the feasibility and cost of analysis and treatment of regulated contaminants.

Publicly Owned Treatment Works (POTW): wastewater treatment facility supported by public funding.

Pyrolysis: chemical decomposition of a material by heat in the absence of oxygen.

Radon: colorless, odorless, tasteless, radioactive gas.

Receiving Waters : bodies of water that receive runoff or wastewater discharges, such as rivers, streams, lakes, estuaries, and ground water.

Recharge: downward movement of water through soil to ground water.

Recharge Area: land area over which precipitation infiltrates into soil and percolates downward to replenish an aquifer.

Recyclables: materials that still have useful physical or chemical properties after serving their original purpose and that can be reused or remanufactured into additional products, thereby serving as substitutes for raw materials.

Recycling: process by which materials otherwise destined for disposal are collected, reprocessed or remanufactured, and reused. Mandatory recycling programs require by law that consumers separate trash so that some or all recyclable materials are not burned or dumped in landfills.

Refractory: material able to withstand dramatic heat variations which may be used to construct conventional combustion chambers in incinerators.

Refuse Derived Fuel (RDF): product of a mixed waste processing system in which certain recyclable and non-combustible materials are removed, and the remaining combustible material is converted for use as a fuel to create energy. Densified Refuse Derived Fuel (d-RDF) results when the fuel is processed to form briquettes, pellets, or cubes.

Residential Waste: materials generated in single and multiple-family homes.

Residue: materials remaining after processing, incineration, composting, or recycling have been completed; normally disposed of in landfills.

Resource Conservation and Recovery Act (RCRA): federal legislation related to hazardous waste (Subtitle C), solid, non-hazardous waste (Subtitle D), and the recovery and use of recycled materials and energy (Subtitle F).

Resource Recovery: extraction and utilization of materials and energy from the waste stream.

Reuse: use of a product, such as a softdrink bottle, in its original form more than once for the same purpose.

Reverse Osmosis (RO): water treatment process in which contaminants are removed by forcing water through a membrane having microscopic holes that allow water molecules, but not larger compounds, to pass through. RO units do not remove all chemicals, and they generally discharge more than half of the total water as waste.

Roll-off Container: large waste container that fits onto a tractor trailer and can be loaded and unloaded hydraulically.

Runoff: the portion of precipitation, snow melt, or irrigation which flows over and through soil, eventually reaching surface water (streams, rivers, lakes).

Safe Drinking Water Act (SDWA): passed by Congress in 1974, and amended in 1986, to insure safe drinking water. It directs the EPA to establish and enforce water quality standards to protect public health.

Salinity: quality of water based on its salt content; seawater contains approximately 18,000 parts per million of salt.

Sanitary Landfill: solid waste disposal site where waste is spread in layers, compacted, and covered with soil or other cover materials each day to minimize pest, aesthetic, disease, air pollution, and water pollution problems. Modern sanitary landfills are equipped with leachate collection and monitoring systems and methane gas controls and are operated in accordance with environmental protection standards.

Saturated Zone: portion of the soil or rock profile in which all pores are filled with water.

Scavenger: one who illegally removes materials at any point in the solid waste management system.

Scrap: discarded or rejected industrial waste material often suitable for recycling.

Scrubber: anti-pollution device that uses a liquid or slurry spray to remove acid gases and particulates from municipal waste combustion facility flue gases.

Secondary Drinking Water Standards: EPA guidelines for establishing Secondary Maximum Contaminant Levels (SMCLs), non-enforceable standards for nuisance contaminants that cause offensive taste, odor, color, corrosion, foaming, and staining.

Secondary Material: used in place of a primary or raw material in manufacturing a product.

Sediment: eroded soil and rock material, and plant debris, transported and deposited by water.

Septic Tank: sewage disposal tank in which a continuous flow of waste material is decomposed by anaerobic (in the absence of oxygen) bacteria.

Signal Word: warning required by the Federal Hazardous Substances Act of 1960 to be used on the label of a hazardous substance. Examples include DANGER, WARNING, CAUTION, and POISON.

Sludge: heavy, slimy residue remaining from the treatment of municipal and industrial water and wastewater. Digested sewage sludge remains after decomposition under controlled temperature, pH, and mixing in a digester tank.

Softening: process of removing hardness caused by calcium and magnesium minerals from water.

Soil Liner: landfill liner composed of compacted soil or synthetic material designed to assist in containment of leachate.

Solid Waste Management: related to storage, collection, transportation, treatment, utilization, processing, and final disposal of solid waste or resource recovery, and facilities necessary for such activities.

Solubility: amount of a substance that will dissolve in a given amount of another substance, typically water.

Soluble: capable of being dissolved easily.

Solvent: liquid capable of dissolving another substance.

Source Reduction: design, manufacture, acquisition, and reuse of materials so as to minimize the quantity and/or toxicity of waste produced. Waste is eliminated by redesigning products or by otherwise changing societal patterns of consumption, use, and waste generation.

Source Separation: segregation of specific recyclable materials at the point of generation for separate collection; often part of a curbside recycling program.

Special Waste: items that require special or separate handling, such as household hazardous waste, bulky waste, tires, and used oil.

Static Water Level: water level in a well before pumping.

Superfund: common name for the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) designed to clean up abandoned or inactive hazardous waste dump sites.

Tipping Fee: Charge, usually in dollars per ton, for the unloading or dumping of waste at a landfill, transfer station, recycling center, or waste-to-energy facility, also called a disposal or service fee.

Total Dissolved Solids (TDS): concentration of all substances dissolved in water (solids remaining after evaporation of a water sample).

Toxic Substance (Toxicant): harmful to plant or animal life, either immediately (acute toxicity) or over a long time period (chronic toxicity).

Transfer Station: site where waste materials are taken and temporarily stored after collection, pending shipment to a disposal site or resource recovery facility. Recycling and some processing may also take place at transfer stations.

Transmissivity: rate at which water passes through a unit width of an aquifer.

Trash: Material considered worthless, unnecessary or offensive that is usually thrown away. In common usage, it is a synonym for garbage, rubbish or refuse.

Tub Grinder: Machine to grind or chip wood wastes for mulching, composting or size reduction.

Turbidity: measure of water cloudiness due to suspended solids.

Unconfined (Water Table) Aquifer: water-bearing formation whose upper boundary is the water table (as opposed to a confining layer).

Unsaturated Zone : portion of the soil profile which contains both air and water. Water in this zone cannot enter a well.

Vector: a carrier, typically an insect or rodent, capable of transmitting a disease.

Virgin Material: raw materials which have never been processed in a manufacturing system, usually requiring more energy to produce than when substituted for by recyclable materials.

Volatilization: conversion of substance to gaseous form.

Volume Reduction: the processing of waste materials so as to decrease the amount of space the materials occupy, usually by compacting or shredding (mechanical), incineration (thermal), or composting (biological).

Waste Exchange: a computer and catalog network that redirects waste materials back into the manufacturing or reuse process by matching companies generating specific waste with companies that use those wastes as manufacturing inputs.

Waste Stream: the total waste generated by all contributors (households, industry, government) in a particular area (city, county, state).

Wastewater Treatment Plant (WWTP): facility that treats wastewater (and sometimes runoff) from domestic and/or industrial sources by a combination of physical, chemical, and biological processes.

Water Table: top of an unconfined aquifer, below which the pore spaces are saturated with water.

Watershed (Drainage Basin): all land and water that drains runoff to a stream or other surface water body.

Waterwall Incinerator: waste combustion facility using lined steel tubes filled with circulating water for cooling. Heat from the combustion gases is transferred to the water, and the resultant steam is sold or used to generate electricity.

Wetlands: areas that are regularly wet or flooded and have a water table that stands at or above the land surface for at least part of the year. Coastal wetlands extend back from estuaries and include salt marshes, tidal basins, marshes, and mangrove swamps. Inland freshwater wetlands consist of swamps, marshes, and bogs.

White Goods: Large household appliances such as refrigerators, stoves, air conditioners and washing machines.

Windrow: A large, elongated pile of composting material. Yard Waste: Leaves, grass clippings, prunings, and other natural organic matter discarded from yards and gardens.

Zoning: designation by ordinances of areas of land reserved and regulated for different land uses; a type of regulatory ordinance based on a land use plan.

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