



Glossary of Technical Terms Related to the Investigation of the Envirosafe Facility

Aquifer

A layer or layers of rock or other geological strata below the surface of the ground that is porous enough to allow a significant flow of groundwater and may be used for a well.

Area of Concern (AOC)

An environment identified as a potential pollution risk.

Bedrock

A general term for the rock layer that lies beneath soil, loose sediments, or other unconsolidated material. Groundwater often is found in the bedrock layer.

Borehole

Hole made by inserting a hollow tube with drilling equipment to draw up a core of soil. The soil samples are collected for testing to determine the site geology and to learn if the soil has been contaminated.

Boring (or soil boring)

A circular hole made in the ground by an auger or mechanical drill rig to collect soil samples deep in the ground. Representative samples are collected for testing to see if the subsoil has been contaminated. Sometimes these borings are converted into groundwater monitoring wells.

Boring logs

The record of formations penetrated, drilling progress, record of depth of water, location of contaminants, and other recorded information having to do with the drilling well.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

Federal law passed in 1980 that created a tax to fund Superfund, a trust fund used to investigate and clean up abandoned or uncontrolled hazardous waste sites.

Clean Water Act (CWA)

The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. (The Act does not deal directly with ground water nor with water quantity issues). The law employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

Cleanup process

A comprehensive program for the clean up (or remediation) of a polluted site. It involves investigation, analysis, and development of a cleanup plan and implementation of that plan.

Confined aquifer

An aquifer in which groundwater is contained under pressure that is significantly greater than atmospheric pressure.

Containment building

A structure typically made of steel-reinforced concrete. It houses hazardous substances in a way that prevents their release in the event of a spill.

Contamination

Introduction of a substance to an environment where it does not belong at levels that might cause harmful health effects.

Corrective Measures Implementation (CMI)

Part of the RCRA Process. The CMI phase involves the design and implementation of a chosen remedy.

Detection limit

The lowest concentration of a chemical that can reliably be distinguished from a zero concentration.

DOCC

Description of Current Conditions of a site. A document required by the EPA before a site investigation begins that includes what is known about the background and existing state of the site.

Drawdown

The drop in the water table or level of water in the ground when water is being pumped from a well.

Ecological risk assessment

Evaluation of actual and predicted effects of contaminants on animal and plant populations and their habitats or communities. An ecological risk assessment does not evaluate the impact of contaminants on humans and domestic animals.

Environmental receptors

Any organism, including site employees, building occupants, the public at large, the atmosphere, animals, plants and microorganisms that may be affected by a release of a contaminant or pollutant.

Equivalent drinking water levels (EDWL)

A standard of protection to prevent exposure to potentially non-carcinogenic or carcinogenic chemicals in potable water. EDWLs are derived using EPA toxicity standards for chemicals *without* established MCLs.

Exposure Assessment

The process of identifying how people come into contact with a hazardous substance, how often and for how long they are in contact with the substance, and how much of the substance they are in contact with.

Exposure pathways

The route a substance takes from its source (where it began) to its end point (where it ends), and how people can come into contact with (or get exposed to) it.

Facility

A facility is defined by the boundaries of an area in which one or more sources of pollution may be located.

Fracture

A break in a rock formation due to structural stresses. Faults, shears, joints, and planes of fracture cleavage are all types of fractures.

Geology

Study of rocks, rock formations, and the structure of the earth.

Geophysical study

Methods of investigating the formations below the surface that involve the analysis of electrical measurements on the land surface or the analysis of subsurface vibrations that are created by an energy source on the land surface.

Geoprobe

A machine used to make soil borings and to create temporary groundwater monitoring wells.

Groundwater

The supply of fresh water found beneath the earth's surface that supplies wells and springs. Because ground water is a major source of drinking water, there is concern over contamination from leaching pollutants and leaking tanks.

Groundwater Discharge

The removal of water from the saturated zone is called groundwater discharge. The discharge area is the geographic area in which the removal occurs.

Groundwater Recharge

Land surfaces where water enters the ground and replenishes groundwater. This process occurs naturally when precipitation infiltrates down through the soil or rock into an aquifer. It can also occur unnaturally as artificial recharge.

Hazardous Waste

By-products of society that can pose substantial or potential harm to human health or the environment when improperly managed. Possesses at least one of four characteristics: (flammable, corrosive, reactive, or toxic), or appears on special EPA lists.

Hazardous Waste Landfill

An excavated or engineered site where hazardous waste is deposited and covered. In siting a hazardous waste landfill, the four main considerations are air quality, groundwater quality, surface water quality, and subsurface migration of gases and leachate.

Hollow stem auger drilling

Conventional drilling method that uses a rotary drill with a screw device (auger) to penetrate the soil. As the augers are rotated, soil cuttings are conveyed to the surface by auger spirals.

Hydraulic conductivity

The ability of an aquifer to transmit water. Aquifers with high hydraulic conductivity yield and transmit more water than similar aquifers with low hydraulic conductivity.

Hydraulic gradient

In general, the direction of groundwater flow due to changes in the depth of the water table.

Hydrogeology

The geology of ground water, with particular emphasis on the chemistry and movement of water.

Impermeable

Not easily penetrated. The property of a material or soil that does not allow, or allows only with great difficulty, the movement or passage of water.

Incineration

A treatment technology involving destruction of waste by controlled burning at high temperatures; e.g., burning sludge to remove the water and reduce the remaining residues to a safe, non-burnable ash that can be disposed of safely.

Industrial waste

Unwanted materials from an manufacturing or similar operation; may be liquid, sludge, solid, or hazardous waste.

Infiltration

The penetration of water through the ground surface into sub-surface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole walls.

Inorganic compounds

Compounds that either do not contain carbon or do not contain hydrogen along with carbon. Inorganic compounds include metals, salts, and various carbon oxides (carbon monoxide, carbon dioxide). These compounds do not combust in incinerators.

Lacustrine deposits

Stratified materials deposited in lake waters that later become exposed either by the lowering of the water level or by the elevation of the land.

Land treatment

Any activity or project to improve conservation of soil, water, or other resources and improve productive use of the resource.

Landfill

(1) Sanitary landfills are land disposal sites for non-hazardous solid wastes, such as from households; (2) Secure chemical landfills are disposal sites for hazardous waste.

Leachate

Water that absorbs or collects contaminants as it trickles through wastes, pesticides or fertilizers. Leaching may occur in farming areas, feedlots, and landfills, and may result in hazardous substances entering surface water, ground water, or soil.

Leachate Collection System

A system that gathers leachate from a landfill and pumps it to the surface for treatment.

Limit of detection

The minimum concentration of a substance being analyzed test that has a 99 percent probability of being identified.

Listed waste

Wastes identified as hazardous under RCRA but which have not been subjected to the Toxic Characteristics Listing Process because the dangers they present are considered self-evident.

Lower till

The lower till is the layer just over the bedrock. At ESOI it is the layer just above the bedrock at the facility: firm, continuous, compact, silty-clay, rich till.

Maximum Contamination Level (MCL)

The maximum permissible level of a contaminant in water delivered to any user of a public system. MCLs are enforceable standards designed to protect drinking water.

Monitoring Well

A well used to obtain water quality samples or measure groundwater levels. A well drilled at a hazardous waste management facility or Superfund site to collect groundwater samples for the purpose of physical, chemical, or biological analysis.

Municipal Solid Waste (MSW)

Residential solid waste and some non-hazardous commercial, institutional, and industrial wastes. This material is generally sent to municipal landfills for disposal.

Non-Aqueous Phase Liquid (NAPL)

Liquids, commonly a mixture of several different chemicals that are either denser or less dense than water. Dense NAPL (DNAPL), such as chlorinated solvents, will sink if it enters groundwater; less dense, or light NAPL (LNAPL), such as gasoline, will float on the water table. NAPL in the subsurface can be a persistent source of groundwater contamination due to its low solubility and viscosity.

Non-point source

Starting place of pollution that is discharged into the natural water body from multiple points is called non-point source of pollution. Urban and agriculture runoff are examples of non-point source of pollution.

Organic compounds

Naturally occurring (animal or plant-produced or synthetic) substances containing mainly carbon, hydrogen, nitrogen, and oxygen.

Parts per billion (ppb)

The concentration of a substance in air, water or soil. One ppb means that there is one part of a substance for every billion parts of the air, water or soil in which it is measured. One ppb is about one drop of dye in 18,000 gallons of water or about one second in 32 years. One ppb is 1,000 times less than one part per million.

Parts per million (ppm)

The concentration of a substance in air, water or soil. One ppm means that there is one part of a substance for every million parts of the water or soil in which it is measured. One ppm is about one drop of dye in 18 gallons of water, about one inch in 16 miles, or one penny in \$10,000.

PCBs (Polychlorinated biphenyls)

A group of synthetic, organic, chlorinated, aromatic hydrocarbons having various industrial applications. They are highly toxic, poisonous and potentially carcinogenic environmental pollutants known to cause skin diseases. They tend to accumulate in animal tissues and are suspect of causing birth defects and cancer.

Permeable

A property of a material or soil that allows the movement or passage of water.

Phase I Environmental Assessment

Determining if hazardous substances may have been released onto a property. Includes historical use of property and a visual inspection.

Phase II Environmental Assessment

Determine if a property meets the definition of a FACILITY under Federal law and developing enough information to prepare a study of the property for a possible due-care compliance plan under the law.

Piezometer

An instrument for measuring the pressure-head of liquids, especially of the water pressure in an aquifer.

Piezometric head

The measure of the pressure in the aquifer.

Piezometric surface

An imaginary surface formed by measuring the level to which water will rise in wells of a particular aquifer. For an unconfined aquifer the piezometric surface is the water table; for a confined aquifer it is the static level of water in the wells. (Also known as the potentiometric surface.).

Point source

Any specific starting place of pollution discharge, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or watercraft.

Remedial Action Plan

A work plan for the cleanup, removal, containment, isolation, treatment, or monitoring of hazardous substances released into the environment. Or taking actions to prevent, minimize, or reduce injury to the public or environmental health from a release of a hazardous substances or a potential release of a hazardous substance.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS is the process of collecting information to support the choice of a cleanup remedy to reduce or eliminate the risks associated with contamination at a site.

RCRA (Resource Conservation and Recovery Act)

RCRA is a Federal law that established a regulatory system to track hazardous substances from their generation to their disposal. It requires the use of safe and secure procedures in treating, transporting, storing and disposing of hazardous substances.

Risk Assessment

A scientific process that estimates the type and magnitude of risk to human health posed by exposure to chemical substances.

Saturated zone

A geological area below the ground surface in which all pores and cracks are filled with water under pressure equal to or greater than that of the atmosphere.

Screening levels/ intervals

The intervals in a groundwater monitoring well where the samples are taken or the interval between the upper and the lower extents of the screen of a groundwater well through which the sample is taken. Maximum screening interval usually is 5 ft.

Semi Volatile Organic Compound (SVOCs)

A substance that evaporates slowly at standard temperature (20° C).

Sheet pile wall

Interlocking sheets of steel that are driven into the ground one at a time by workers on the surface using specialized pile-driving equipment to create a continuous wall of steel. Sheet piles are typically used to build bulkheads, retaining walls, cofferdams, and barriers to control surface and/or groundwater flows.

Site Assessment

A site assessment is a determination if a hazard was released, the level of detectable contaminant, and the likely spread of the hazardous or potentially hazardous pollutant.

Soil boring (or boring)

A circular hole made in the ground by an auger or mechanical drill rig to collect soil samples deep in the ground. Representative samples are collected for testing to see if the subsoil has been contaminated. Sometimes these borings are converted into groundwater monitoring wells.

Solid Waste Management Unit (SWMU)

Any unit at a facility from which hazardous substances are stored, and from which the hazards might migrate, irrespective of whether the unit was intended for management of solid or hazardous waste.

Surface Water

All water naturally open to the atmosphere (water creeks, rivers, lakes, reservoirs, ponds, streams, seas, estuaries).

Toxicity

A measure of the poisonous or harmful nature of a substance.

Trench

Linear hole or pit into which a new pipe (for example, water supply pipes) will be inserted or an existing pipe will be serviced.

TSDF

Treatment, Storage, or Disposal Facility (for hazardous waste). (From RCRA.)

Turbidity

The cloudy or muddy appearance of a naturally clear liquid caused by the suspension of particulate matter, or tiny substances.

Unsaturated Zone

The unsaturated zone is the area between the land surface and the uppermost aquifer (or saturated zone). The soils in an unsaturated zone may contain air and some water.

Upper till

Directly overlying the lower till is the upper till. This geology layer is similar to the lower till in sand-silt clay percentages in the surrounding substance, or matrix. It is very soft by comparison, often appears to be less stony (fewer pebble and gravel-size sediment) than the lower till, and is characteristically more plastic.

Volatile Organic Compound (VOC)

Any organic compound that evaporates readily to the atmosphere. VOCs contribute significantly to photochemical smog production, air pollution and certain health problems.

Wastewater

Spent or used water from an individual home, community, farm or an industry that contains dissolved or suspended substances.

Water Table

The upper surface of the saturated zone in aquifers that are not confined by impermeable geologic material.