



APPENDIX A

Glossary

Aboveground Storage Tank (AST) – Storage tanks that are aboveground, regardless of whether they are used to store petroleum products, hazardous waste, or other hazardous material.

Accelerated Site Characterization – Process for characterizing vadose zone and groundwater contaminated sites using primarily professional judgment-based sampling and measurements by an integrated, multidisciplinary core technical team.

Action Level – Health and environmentally based concentrations of hazardous constituents in groundwater, surface water, soil, sediment, or air determined to be indicators for protection of human health and the environment. Several EPA regions and many states have published specific lists of action levels for cleaning up contaminated sites.

Acute (Toxicity) – The ability of a substance to cause severe biological harm or death soon after a single exposure or dose. Also, any poisonous effect resulting from a single, short-term exposure to a toxic substance (see **Chronic Toxicity, Toxicity**).

Acute Hazardous Waste (AHW) – See P-listed Waste.

Air Pollution Control Device – Equipment, including that used to separate entrained particulate matter or organic vapors from gases, gas separation equipment, thermal oxidation equipment, and chemical reaction and conversion equipment that is designed and used to reduce the discharge of a specific air pollutant to the atmosphere.

Air Sparging – Injection of air below the water table to strip dissolved volatile organic compounds and/or oxygenate groundwater to facilitate aerobic biodegradation of organic compounds.

Air Toxics – Any air pollutant for which a National Ambient Air Quality Standard does not exist that may reasonably be anticipated to cause cancer; respiratory, cardiovascular, or developmental effects; reproductive dysfunctions; neurological disorders; heritable gene mutations; or other serious or irreversible chronic or acute health effects in humans. Air toxics are also referred to as hazardous air pollutants.

Alternative Fuel – Substitute for traditional, liquid oil-derived motor vehicle fuels, such as gasoline and diesel. Includes mixtures of alcohol-based fuels with gasoline, methanol, ethanol, compressed natural gas, and others.

Area Source – Stationary sources of hazardous air pollutants (HAPs) that do not meet the definition of major source. A source that emits less than 10 tons per year of a single HAP or less than 25 tons per year of a combination of HAPs.

Attainment Area – A geographic area considered to have air quality as good as or better than the National Ambient Air Quality Standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a nonattainment area for others.

Barrel – Container capable of holding 42 U.S. gallons at 60 degrees Fahrenheit (159 liters).

Berm – Dirt, concrete, or other constructed embankment that is commonly employed for secondary containment or drainage diversion purposes for liquid storage.

Best Available Control Technology (BACT) – An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted taking into account energy, environmental, and economic impacts that is achievable through application of production processes or available methods, systems, and techniques (including fuel cleaning, treatment, or innovative combustion techniques) for control of each such pollutant.

Best Management Practice (BMP) – A suite of techniques that guide, or that may be applied to, management actions to aid in achieving desired outcomes, often for preventing or reducing pollution from non-point sources.

Biennial or Annual Hazardous Waste Report – A report submitted by large quantity generators and treatment, storage, and disposal facilities to enable EPA and the states to track the quantities of hazardous waste generated and the movements of those hazardous wastes. *Biennial* means every 2 years.

Bioaugmentation – Enhanced biodegradation involving the addition of supplementary microorganisms.

Biodegradable – Capable of decomposing under natural conditions.

Biodegradation – A process by which microbial organisms transform or alter (through metabolic or enzymatic action) the structure of chemicals introduced into the environment.

Biofuel – Liquid fuel and blending components produced from renewable biomass, such as plant feedstocks, and used as alternative or supplemental fuels for internal combustion engines. Biofuels are sometimes blended with petroleum-based fuels (gasoline or diesel) to form a biofuel blend.

Biomass – The amount of living or biological material in a given area or volume; often refers to vegetation.

Biomounding – Technology used to reduce petroleum or organic compounds in excavated soils through the use of biodegradation. Often called biopiles, biocells, or compost piles. This technology involves heaping contaminated soil into piles and stimulating microbial activity within the soils through aeration and/or the addition of minerals, nutrients, and moisture. The air and nutrients can be added to the pile through slotted or perforated piping placed in the pile.

Bioremediation – Use of living organisms to clean up oil spills or remove other pollutants from soil, water, or wastewater.

Biota – Plant and animal life or the collection of organisms in a given geographic region or time period.

Black Start – An engine whose only purpose is to start up a combustion turbine.

Blind Flange – A fitting used to cap or seal the end of a pipe. It consists of a plate bolted to the flanged or flared end of a pipe.

Booming – Using a floating device to contain oil on a body of water.

Bowser – A towed container with wheels or small tanker used for liquid collection and often used to fuel or defuel aircraft at airports and airfields.

Brake Horsepower (bhp) – Brake horsepower refers to the measurement method where the engine, at full throttle, is held to a specific rotation per minute (rpm) by an applied device or brake, and the output is measured. This is the power actually delivered by the engine and is therefore the capacity of the engine. It is the measure of an engine's horsepower before the loss of horsepower caused by any other component.

Breakout Station (Tank) – A facility affiliated with a pipeline that contains tanks used to relieve surges in liquids or to receive and store liquids transported by pipeline for reinjection and continued transport by pipeline. Breakout tanks are sometimes referred to as breakout stations.

Breathing Losses – See **Standing Storage Losses**.

Brownfield – Abandoned, idled, or under-used industrial and commercial facility and/or site where expansion or redevelopment is complicated by real or perceived environmental contamination. They can be in urban, suburban, or rural areas. EPA's Brownfield initiatives help communities mitigate potential health risks and restore the economic viability of such areas or properties.

Bulk Gasoline Plant – Any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, or cargo tank and has a gasoline throughput of *less than* 20,000 gallons per day. Gasoline throughput must be the maximum calculated design throughput.

Bulk Gasoline Terminal – Any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, or cargo tank and has a gasoline throughput of 20,000 gallons per day *or greater*. Gasoline throughput shall be the maximum calculated design throughput.

Capillary Fringe – A zone in the subsurface soil at which groundwater seeps up from the water table via capillary forces or wicking.

Carbon Monoxide (CO) – A colorless, odorless gas produced by incomplete fossil fuel combustion. CO is an asphyxiant. CO is a criteria pollutant for which 1-hour and 8-hour National Ambient Air Quality Standards have been established.

Capitalized Product – Fuel that is owned by DLA Energy.

Cathode Ray Tube (CRT) – Vacuum tubes made primarily of glass that are found in the video display components of televisions and computer monitors.

Cathodic Protection – Any one of several techniques to prevent corrosion of a metal surface by making it the cathode of an electrochemical cell.

Characteristic (Hazardous) Waste – Waste that is considered hazardous under the Resource Conservation and Recovery Act because it exhibits any of four different properties: ignitability, corrosivity, reactivity, and toxicity (see 40 CFR 261, Subpart C).

Chemical Abstract Service (CAS) Registry Number – A database of chemical substance information containing more than 33 million organic and inorganic substances. Each CAS Number is a unique identifier containing up to 10 digits.

Chlorofluorocarbons (CFCs) – A family of easily liquefied chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents and aerosol propellants. They are composed of carbon, fluorine, chlorine, and hydrogen. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where their chlorine components destroy the ozone layer in the stratosphere, thereby allowing more harmful solar radiation to reach the earth's surface. Manufactured under the trade name Freon.

Chronic (Toxicity) – The capacity of a substance to cause long-term poisonous health effects in humans, animals, fish, and other organisms (see **Acute Toxicity, Toxicity**).

Class I Ozone Depleting Substance – One of several groups of chemicals with an ozone depletion potential of 0.2 or higher, including chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform (listed in the Clean Air Act) and ethyl bromide (added by EPA regulations).

Class II Ozone Depleting Substance – A substance with an ozone depletion potential of less than 0.2. All hydrochlorofluorocarbons are currently included in this classification.

Clean Air Act (CAA) – The federal legislation addressing air pollution control. Establishes National Ambient Air Quality Standards for common pollutants (criteria pollutants) and requires states to institute controls with established air quality control regions to achieve the National Ambient Air Quality Standards. Requires EPA to establish necessary air quality control where states fail to do so. The severity of the controls increases as the degree of non-attainment with the National Ambient Air Quality Standards increases. Mandates EPA regulation of 138-identified hazardous air pollutants.

Clean Water Act (CWA) – Legislation whose purpose is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA regulated the discharge of pollutants from point sources into waters of the U.S. Establishes the dredge and fill permit program. The CWA, as amended in 1987, requires each state to establish water quality standards for its surface waters derived from the amount of pollutants that can be assimilated by a body of water without deterioration of a designated use.

Code of Federal Regulations (CFR) – Document that represents all rules of the executive departments and agencies of the federal government. It is divided into 50 volumes, known as titles. Title 40 of the CFR (referenced as 40 CFR) lists all environmental regulations.

Commercial Chemical Product – Unused or off-specification chemical, chemical intermediate, spill, or container residue. For the purposes of hazardous waste listings, commercial chemical products include only pure-grade chemical products and formulations where the chemical is the sole active ingredient (see 40 CFR 261.33).

Compostable – Able to be decomposed (broken down) and recycled as a fertilizer and soil amendment. Controlled methods of composting include mechanical mixing and aerating, ventilating the materials by dropping them through a vertical series of aerated chambers, or placing the material in piles in the open air and mixing it or turning it periodically.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – The federal legislation addressing cleanup of hazardous substance releases. Empowers EPA to identify and prioritize sites for cleanup, and to order or carry out environmental remediation. Mandates reporting of hazardous substance releases to the National Response Center. With the Clean Water Act, mandates preparation of the National Contingency Plan for responding to oil or hazardous substance releases.

Compression Ignition Internal Combustion Engine (CI ICE) – An engine in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition, including diesel engines, dual-fuel engines, and engines that are not spark ignition. These type engines do not have a spark plug or other sparking device to cause fuel ignition, but instead fuel ignition is driven by compression.

Concentration – The relative amount of a substance mixed with another substance. An example is 5 parts per million (ppm) of carbon monoxide in air or 1 milligram per liter (mg/L) of iron in water.

Conceptual Site Model (CSM) – A useful way to summarize what is known about site conditions, migration pathways, and areas of contamination. Such information may be summarized on a two- or three-dimensional drawing developed from available analytical data, historic records, aerial photographs, and the risk assessment.

Cone of Depression – The areas around a discharging well where the hydraulic head (potentiometric surface) in the aquifer has been lowered by pumping at a rate exceeding the recharge rate. In an unconfined aquifer, the cone of depression is an inverted, cone-shaped depression in the water table where the media has actually been dewatered.

Continuous Emission Monitoring – The continuous sampling and analysis of gases, particulate matter, or opacity by monitors or other equipment. The 1990 Clean Air Act amendments require continuous emission monitoring systems for certain large sources.

Continuous Release – Typically applies to air emissions, these emissions are routine, anticipated, and regular in amount and rate. They occur as part of normal operations and might occur without interruption, during certain processes, or intermittently during specific activities.

Corrosivity Characteristic – The characteristic that identifies hazardous waste that are acidic or alkaline (basic) and can readily corrode or dissolve flesh, metal, or other materials (see 40 CFR 261.22).

Criteria Pollutant – Certain pollutant known to be hazardous to human health. Established by EPA National Ambient Air Quality Standards under the Clean Air Act. EPA has identified and set standards to protect human health and welfare for seven pollutants: ozone, carbon monoxide, sulfur dioxide, lead, nitrogen oxide, respirable particulate matter (diameter less than 10 micrometers), and fine particulate matter (diameter less than 2.5 micrometers).

Delegated State Agency – A state (or other governmental entity such as a tribal government) that has received authority to administer an environmental regulatory program in lieu of a federal counterpart. As used in connection with the National Pollutant Discharge Elimination System, Underground Injection Control, and Public Water Supply programs, the term does not connote any transfer of federal authority to a state.

Density – The amount of mass per unit volume.

Dermal Absorption – Process by which a chemical penetrates the skin and enters the body as an internal dose.

Desorb – To remove by a chemical or physical process.

Destruction (and Removal) Efficiency – A percentage that represents the amount of a compound entering a control device or set of control devices divided by the amount of the same compound exiting the control device or set of control devices. For example, for a given compound X, a destruction efficiency of 99.99% means that for every 10,000 pounds (lb) of compound X entering the control device, 9,999 lb of compound X are destroyed by the device; 99.99% is known as “four nines.”

Direct Discharge – A municipal or industrial facility that introduces wastewater (usually treated) through a defined conveyance or system such as an outlet pipe (referred to as a point source) into surface water.

Direct Emissions – Those emissions of a criteria pollutant or its precursors that are caused or initiated by a federal action and occur at the same time and place as the action.

Direct Push Drill Rig – Direct push technology includes several types of drilling rigs and drilling equipment that advances a drill string by pushing or hammering without rotating the drill string. While this does not meet the proper definition of drilling, it does achieve the same result—a borehole. Direct push rigs include both cone penetration testing (CPT) rigs and direct push sampling rigs, such as a Geoprobe. Direct push rigs, are typically limited to drilling in shallow, unconsolidated soil materials.

Discharge – The flow of surface water in a stream or canal or the outflow of ground water from a well, ditch, or spring. It can mean any spilling, leaking, pumping, pouring, emitting, or dumping of oil or a hazardous substance, except for discharges in compliance with permits.

Discharge Monitoring Report (DMR) – The form used to report self-monitoring results by NPDES permittees. DMRs must be used by approved states and by EPA.

Diesel Particulate Filter – An emission control technology that reduces particulate matter emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.

Dispersion – The act or process of scattering or separating.

Disposal – Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases. Disposal may be accomplished through use of approved secure landfills, surface impoundments, landfarming, deep-well injection, ocean dumping, or incineration.

Diversionsary Structure – Engineered features or structures, such as berms, walls, weirs, culverts, gutters, catchment basins, sumps, pipelines, and valves, designed to redirect or change water flow direction and prevent unwanted discharges to the environment.

Dual-Phase Extraction – Active withdrawal of two substances from a well, usually involving the use of one or more vacuum pumps. The two substances could be either a liquid and a gas or two-phased liquids, such as oil and water.

Effluent – Treated or untreated wastewater that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

Effluent Limitation – Restrictions established by a state or EPA on quantities, rates, and concentrations in wastewater that can be legally discharged to a water body through a point source.

Emergency Demand Response Programs – A program where regional or local transmission and distribution organizations may request the use of a facility's stationary emergency internal combustion engine (ICE) for limited hours in specific circumstances of national electric service grid instability to prevent grid failure or electrical blackouts.

Emergency Planning and Community Right-to-Know Act (EPCRA) – Legislation also known as Title III of the Superfund Amendments and Reauthorization Act (SARA Title III). EPCRA focuses on the hazards associated with toxic chemical releases. Most notably, specific sections of EPCRA require immediate notification of releases of oil and hazardous substances and CERCLA-defined hazardous substances to state and local emergency response planners. Requires state and local coordination in planning response actions to chemical emergencies. Requires certain industries to submit information on chemical inventories and fugitive emissions.

Emergency Use Engines – Any stationary ICE that is only operated in emergency situations. Examples of emergency use are operation to provide power when the normal electric power is interrupted or to pump water in the case of fire or flood.

Emission Factor – A value that attempts to relate the amount of pollution released per amount of raw material processed, fuel consumed, product produced, or other process parameter. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant. For example, an emission factor for a blast furnace making iron would have units of pounds of particulates per ton of raw materials.

Emissions Inventory – A listing, by source, of the amount of air pollutants discharged into the atmosphere from a facility or from an entire air basin.

Energy Intensity – Energy consumption per gross square foot of building space, including industrial and laboratory facilities.

EPA Identification (ID) Number – The unique code assigned to each generator, transporter, and treatment, storage, or disposal facility by regulating agencies to facilitate identification and tracking of chemicals or hazardous waste.

Evapotranspiration – Part of the earth’s hydrologic or water cycle that consists of the sum of evaporation and plant transpiration. Evaporation is water becoming a vapor driven by the sun and heat, and transpiration within a plant is the subsequent loss of water as vapor through stomata or pores in its leaves.

Ex situ – Moved from its original place; excavated, removed, or recovered from the subsurface.

Exposure Assessment – Identifying the actual or anticipated pathways by which a toxic substance may reach individuals, estimating how much of a chemical an individual is likely to be exposed to, and estimating the number of individuals likely to be exposed.

Exposure Pathway – The physical course a chemical or pollutant takes from its source to the exposed organism.

Exposure Route – The way a chemical or pollutant enters an organism after contact (such as by ingestion, inhalation, dermal absorption, or injection).

Extremely Hazardous Substance (EHS) – Any of more than 400 chemicals identified by EPA as toxic, and listed under Title III of the Superfund Amendments and Reauthorization Act. The list (in 40 CFR 355) is subject to periodic revision.

Facility Response Plan (FRP) – A detailed plan that must be prepared in accordance with 40 CFR 112.20 by facilities that may cause “substantial harm” to the environment or exclusive economic zone. The plan must contain an emergency response action plan and demonstrate that a facility has the resources to respond to a worst-case scenario discharge.

Flare – An air pollution control device that is used to prevent the release of volatile organic compounds and/or hazardous air pollutants into the environment.

Flash Point – The lowest temperature at which a flammable liquid produces a sufficient amount of vapor (through evaporation) to ignite with a spark.

F-Listed Waste – Hazardous waste generated from non-specific sources (not process-specific). Includes waste commonly produced by various manufacturing and industrial processes, such as spent solvents or wastewater treatment sludges from electroplating processes (refer to 40 CFR 261.31).

4-stroke Engine – Any type of engine that completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Free Product – A layer of petroleum hydrocarbons floating on surface water or groundwater.

Fugitive Emissions – Pollutant released into the air from leaks in equipment, pipelines, seals valves and not from the usual sources such as a stack, chimney, vent, or other functionally equivalent opening.

Gasoline Dispensing Facility – Any stationary facility that dispenses gasoline into the fuel tank of a motor vehicle, motor vehicle engine, non-road vehicle, or non-road engine, including a non-road vehicle or non-road engine used solely for competition. These facilities include facilities that dispense gasoline into on-road and off-road, street, or highway motor vehicles, lawn equipment, boats, test engines, landscaping equipment, generators, pumps, and other gasoline-fueled engines and equipment.

General Permit – A permit applicable to a class or category of dischargers.

Generator – Any person whose act first creates or produces a hazardous waste, used oil, or medical waste, or first brings such materials into Resource Conservation and Recovery Act regulation.

Government-Owned, Contractor-Operated (GOCO) Facility – A facility that is owned by the federal government but all portions of which are operated by private contractors.

Greenhouse Gas – Compounds found in the Earth's atmosphere, such as naturally occurring water vapor, carbon dioxide, methane, nitrous oxide, ozone, and man-made hydrofluorocarbons, perfluorocarbons, chlorofluorocarbons, and sulfur hexafluoride. Greenhouse gases absorb infrared radiation from sunlight and trap the heat in the atmosphere.

Green Infrastructure – An array of products, technologies, and practices that use natural systems or engineered systems that mimic natural processes that direct stormwater to areas where it can be infiltrated, evapotranspired (returned to the atmosphere either through evaporation or by plants), or reused on the site where it is generated. Green infrastructure can be used in place of, or in addition to, more traditional stormwater control elements.

Green Procurement – Formerly known as Affirmative Procurement, the purchase of environmentally preferable products and services, often in accordance with federally mandated goals.

Groundwater – The supply of fresh water found beneath the earth's surface in pore spaces of saturated geologic media, referred to as aquifers.

Group I through IV Petroleum Oils – Group I oils are non-persistent oil that has hydrocarbon fractions that at least 50% by volume distill at 340°C and at least 95% distill at 370°C. Group II through IV oils are persistent petroleum-based oil that do not meet the criteria for non-persistent oils and have varying specified ranges of specific gravity less than 1.0 (see 33 CFR 154.1020 and 40 CFR 112 Appendix E).

Halon – Compounds composed of carbon and fluorine, bromine, and/or chlorine that have long atmospheric lifetimes and whose breakdown in the stratosphere causes depletion of ozone. Halons are used mainly in firefighting equipment.

Harmful Quantities – Any quantity of discharged oil that violates applicable water quality standards, causes a film or iridescent sheen on water or shorelines, or causes a sludge or emulsion to be deposited beneath the surface of the water or on shorelines.

Hazard Communication Standard (HCS or HAZCOM) – An Occupational Safety and Health Act regulation in 29 CFR 1910.1200 that requires chemical manufacturers, suppliers, and importers to assess the hazards of the chemicals that they make, supply, or import, and to inform employers, customers, and workers of these hazards through Safety Data Sheets.

Hazardous Air Pollutant (HAP) – Air pollutant that is not covered by ambient air quality standards but that, as defined in the Clean Air Act, may present a threat of adverse human health effects or adverse environmental effects. EPA has designated 187 compounds as HAPs. HAPs are also referred to as air toxics pollutants.

Hazardous Chemical – An EPA designation for any chemical or material requiring a Safety Data Sheet under the Occupational Safety and Health Act's Hazard Communication Standard (29 CFR 1910.1200). Such substances are capable of producing fires and explosions or adverse health effects such as cancer and dermatitis.

Hazardous Material – A substance or material that has been determined by the Department of Transportation to be capable of posing risk to health, safety, and property when transported in commerce (see 49 CFR 172.101 for a list of hazardous materials).

Hazardous Substance – 1) Any material that poses a threat to human health and/or the environment; typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive; 2) any substance designated by EPA in 40 CFR 302.4 to be reported if a designated quantity of the substance is spilled in the waters of the U.S. or is otherwise released into the environment.

Hazardous Waste Operations and Emergency Response (HAZWOPER) – Occupational Safety and Health Act standard that protects the health and safety of workers engaged in operations at hazardous waste sites, hazardous waste treatment facilities, and emergency response locations.

Hazardous Waste – By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity) or appears on specific EPA lists in 40 CFR 261.

Headspace – The vapor mixture trapped above a solid or liquid in a sealed tank or container.

Heavy-end – The highest boiling portion of a petroleum fraction.

High-Performance Buildings – The result of a comprehensive and integrated design approach that strives to maximize human comfort and productivity while minimizing the buildings' lifetime economic and environmental costs.

Horsepower (hp) – The name of several units of measurement of power or the rate at which work is done over time. Horsepower is typically used to measure the power of engines and motors. The term was originally arbitrarily defined as the power exerted by a horse in pulling; 1 hp is one horse doing 33,000 foot-pounds of work every minute. In electrical terms 1 hp is equivalent to 746 watts.

Ignitability Characteristic – The characteristic that identifies hazardous waste that can readily catch fire and sustain combustion (see 40 CFR 261.21).

Impervious – Incapable of being penetrated. Secondary containment structures must be sufficiently impervious to the types of products stored within the area of containment.

Impressed Current – A method of protecting metal tanks and piping from corrosion by incorporating direct current from an external source and an energized anode to deliver current to the tank or pipe.

Incinerator – An enclosed device or furnace that uses controlled flame combustion for burning waste.

Indirect Emissions – Those emissions of a criteria pollutant or its precursors that are caused by a federal action but may occur later in time and/or may be further removed in distance from the action itself but are still reasonably foreseeable and which the federal agency can practicably control and will maintain control over due to a continuing program responsibility of the federal agency.

Indirect Discharge – Introduction of pollutants from a non-domestic source into a publicly owned wastewater treatment system. Indirect dischargers can be commercial or industrial facilities whose wastewaters enter local sewers.

Injection Well – A well used to inject a fluid (liquid or gas) under pressure into the subsurface. Often used for the purpose of waste disposal, subsurface treatment of soil or groundwater, or improving the recovery of crude oil.

In Situ – In its original place; unmoved or unexcavated; remaining at the site or in the subsurface.

Integrity Testing – Any means to measure the strength (structural soundness) and imperviousness of a container shell, bottom, and/or floor to contain liquid, and which may include leak testing to determine whether the container will discharge its contents.

Interstitial Monitoring – The continuous surveillance of the space between the wall of an underground storage tank and its outer containment wall.

Intrinsic Bioremediation – see **Natural Attenuation**.

K-listed Waste – Hazardous waste generated from industry-specific manufacturing processes (such as wood preserving, petroleum refining, and organic chemical manufacturing) as identified in 40 CFR 261.32. None of the K-listed wastes are typically generated at bulk petroleum terminals.

Land Disposal Restriction (LDR) – Rule that requires hazardous wastes to be treated before disposal on land to destroy or immobilize hazardous constituents that might migrate into soil and groundwater.

Landfarming – A treatment process in which petroleum or organic compounds deposited on or in the soil are degraded naturally by microbes. Microbial activity is usually enhanced by frequent tilling or plowing to aerate the soil. Minerals, nutrients, and moisture are also routinely added to stimulate the growth of microorganisms, which in turn degrade the organic compounds.

Large Quantity Generator (LQG) – Person or facility generating more than 2,200 lb of hazardous waste per month. Such generators produce about 90% of the nation's hazardous waste, and are subject to all Resource Conservation and Recovery Act requirements.

Large Quantity Handler – A universal waste handler who accumulates 5,000 kg (11,000 lb) or more total universal waste (certain batteries, pesticides, thermostats, lamps, calculated collectively) at any time. The designation as a large quantity handler of universal waste is retained through the calendar year in which the 5,000 kg or more of total universal waste is accumulated.

Laser-Induced Fluorescence – A geophysical mapping tool used to delineate the depth and horizontal extent of free product and residual petroleum contamination.

Leachate – Liquid that collects contaminants as it trickles or drains through wastes, pesticides, or fertilizers. Leaching may occur in farming areas, feedlots, and landfills, and may result in hazardous substances entering surface water, groundwater, or soil.

Leaching – Process by which soluble constituents are dissolved and filtered through the soil by a percolating fluid.

Lead – An inorganic compound or metal present in air, food, water, soil, and old paint. Overexposure to this metal can cause damage to the circulatory, digestive, and central nervous systems. Children less than 6 years old are considered the most susceptible. One of the National Ambient Air Quality Standards criteria pollutants.

Lean Burn Engine – A gas-fired spark-ignited engine that is operated with an exhaust oxygen content of 4% by volume or greater.

Life Cycle Cost – An analysis that calculates the cost of a system or product over its entire life span. Typically consists of including costs for planning, research and development, production or construction, operation and maintenance, replacement costs, and disposal or salvage.

Light Non-aqueous Phase Liquid (LNAPL) – Organic liquids such as gasoline, diesel and other petroleum hydrocarbon products that are not mixable with water and are less dense than water.

Line Tightness Testing – Leak detection methods for piping vary but must be able to detect a leak at least as small as 0.1 gallon per hour when the line pressure is 1.5 times its normal operating pressure, with certain probabilities of detection and of false alarm. Typically conducted annually.

Listed (Hazardous) Waste – Chemical substances or processes that produce chemical substances considered hazardous under the Resource Conservation and Recovery Act because they meet specific listing criteria or descriptions (see 40 CFR 261 Subpart D).

Local Emergency Planning Committee (LEPC) – A committee appointed by the state emergency response commission, as required by Title III of the Superfund Amendments and Reauthorization Act, to formulate a comprehensive emergency plan for its jurisdiction.

Low Impact Development– A sustainable landscaping approach that can be used to replicate or restore natural watershed hydrologic and ecological functions. Low impact development practices typically retain rain water and encourage it to soak into the ground rather than allowing it to run off into ditches and storm drains where it would otherwise contribute to flooding and pollution problems.

Low-Temperature Thermal Desorption – A treatment technology that uses heat to physically separate hydrocarbons from excavated soil. The contaminated soil is generally placed in a rotary reactor at temperatures hot enough to volatilize the compounds. The vaporized hydrocarbons are then usually treated in a secondary treatment unit, such as an afterburner, catalytic oxidation chamber, condenser, or carbon adsorption unit. Also known as *low-temperature thermal volatilization, thermal stripping, and soil roasting*.

Lowest Achievable Emission Rate (LAER) – Under the Clean Air Act, the rate of emissions that reflects 1) the most stringent emission limitation in the implementation plan of any state for such sources unless the owner or operator demonstrates such limitations are not achievable or 2) the most stringent emissions limitation achieved in practice, whichever is more stringent.

Magniflux (Testing) – A method of measuring the thickness of a tank shell and determining the location, size, and nature of defects. In this method, a magnetic flux scanner induces a magnetic field as it is rolled over the surface of the tank or pipe. A sensor measures the magnetic field strength, which is a function of the thickness of the tank or pipe wall.

Major Modification – This term is used to define modifications of major stationary sources of emissions with respect to Prevention of Significant Deterioration and New Source Review under the Clean Air Act. A major modification is a modification to an existing minor source of air pollution that constitutes a major source by itself or a modification to an existing major source of air pollution that constitutes a significant net emissions increase.

Major Source (of Air Pollution; Title V) – A facility containing an emissions unit or any group of emissions units that is or includes any of the following: any emissions unit or group of emissions units that has the potential to emit, in the aggregate, 10 tons per year or more of any individual hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants; or any emissions unit or group of emissions units located in an attainment area that has the potential to emit 100 tons per year or more of any regulated air pollutant. Fugitive emissions of regulated air pollutants shall not be considered in determining whether a source is a Title V source unless the source belongs to one of 28 major source categories listed in 40 CFR 70.2. Petroleum storage and transfer facilities with a total storage capacity exceeding 300,000 barrels are listed as one of the 28 major source categories. For facilities located in nonattainment areas, major source thresholds are reduced to levels commensurate with the degree or classification of nonattainment. These major source thresholds are different for each criteria pollutant and nonattainment classification, and are defined in 40 CFR 70.2.

Major Source (of Air Pollution; PSD and/or NSR) – In attainment areas (where Prevention of Significant Deterioration applies), any emissions unit that has the potential to emit 250 tons per year or more of any regulated air pollutant, including fugitive emissions. In nonattainment areas (where New Source Review applies), any emissions unit that has the potential to emit 100 tons per year or more of any regulated air pollutant, including fugitive emissions.

Mass Balance (Balancing) – An approach used to estimate the quantity of a chemical or material based on the conservation of matter (material cannot be created nor destroyed). For instance, the amount of material released as waste or emissions can be calculated as the difference between the mass or materials entering a process as inputs and the mass or material leaving a process as the output or products, if the chemical reactions within the process are taken into account.

Maximum Achievable Control Technology (MACT) – The emission standard for sources of air pollution requiring the maximum reduction of hazardous emissions, taking cost and feasibility into account. Under the Clean Air Act Amendments of 1990, the MACT must not be less than the average emission level achieved by controls on the best-performing 12% of existing sources, by category of industrial and utility sources.

Microorganisms – Microscopic organisms including bacteria, protozoans, yeast, fungi, mold, viruses, and algae.

Minor Source – Any emission unit or group of emissions units that does not constitute a major source of air pollution.

Monitoring Well – A well used to measure groundwater levels and/or collect groundwater samples for the purpose of physical, chemical, or biological analysis to determine the amounts, types, and distribution of contaminants in the groundwater beneath the site.

Montreal Protocol – Treaty signed in 1987 that governs stratospheric ozone protection and research and the production and use of ozone-depleting substances. It provides for the end of production of ozone-depleting substances, such as chlorofluorocarbons. Under the protocol, various research groups continue to assess the ozone layer. The Multilateral Fund provides resources to developing nations to promote the transition to ozone-safe technologies.

Motive Power Container – Any onboard storage container used primarily to power the movement of the vehicle or other onboard operational equipment. For instance, the gas tank built into a vehicle by the manufacturer is a motive power container. An onboard storage tank containing fuel that is added or placed in a pickup truck bed is *not* an example of a motive power container.

Multi-Sector General Permit (MSGP) – A permit that covers stormwater discharges from a variety of industrial activities, such as land transportation facilities (bulk petroleum stations and terminals and railroad and highway transportation facilities), boat-building and repair yards, and air transportation facilities. An MSGP contains industry-specific sections that address pollution prevention plan requirements, numerical effluent limitations, and monitoring requirements for each given industry.

National Ambient Air Quality Standards (NAAQS) – Ambient air quality standards established by EPA pursuant to the Clean Air Act and specified at 40 CFR 50. NAAQS have been established for seven criteria pollutants (sulfur dioxide, respirable particulate matter, fine particulate matter, nitrogen dioxide, carbon monoxide, ozone, and lead) to protect human health and the environment from air pollution.

National Contingency Plan (NCP) Product Schedule – List of dispersants, surface washing agents, surface collecting agents, bioremediation agents, and miscellaneous oil spill control agents that are used to collect, remove, disperse, or bioremediate oil spilled onto navigable waters, adjoining shorelines, waters of the contiguous zone, and high seas. Product manufacturers must submit technical data to EPA about their product to be placed on the schedule.

National Emissions Standards for Hazardous Air Pollutants (NESHAP) – Emissions standards set by EPA to control the emission of hazardous air pollutants that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness from specific industrial sources. Primary standards are designed to protect human health, secondary standards to protect public welfare, such as building facades, visibility, crops, and domestic animals.

National Environmental Policy Act (NEPA) – A 1969 statute that requires all federal agencies to incorporate environmental considerations into their decision-making processes. NEPA requires an environmental impact statement for any major federal action significantly affecting the quality of the human environment.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP or OHSPCP) – The federal regulation that guides determination of the sites to be cleaned up under both the Superfund program and the program to respond to spills into surface waters or elsewhere (see 40 CFR 300).

National Pollutant Discharge Elimination System (NPDES) – A national program for issuing, modifying, revoking and reissuing, terminating monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements under the Clean Water Act. NPDES programs are either U.S. Environmental Protection Agency (EPA) or state programs. State programs must be approved and authorized by EPA.

National Preparedness for Response Exercise Program (PREP) – Developed by the U.S. Coast Guard, U.S. Environmental Protection Agency, U.S. Department of Transportation Research and Special Programs Administration Office of Pipeline Safety (now known as the Pipeline and Hazardous Materials Safety Administration [PHMSA] Office of Pipeline Safety), U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement (formerly Minerals Management Service), states, and industry. National Preparedness for Response Exercise Program (PREP) exercises satisfy Oil Pollution Act of 1990 mandated federal oil pollution response exercise requirements.

National Response Center (NRC) – The federal operations center that receives notifications of all releases of oil and hazardous substances into the environment, (800) 424–8802. The NRC is open 24 hours a day and is operated by the U.S. Coast Guard, which evaluates all reports and notifies the appropriate agency.

Natural Attenuation – A passive remedial approach that depends on natural processes (such as absorption, adsorption, degradation, dilution, dispersion, and volatilization) to remove organic compounds and petroleum in soil and groundwater. Routine monitoring of contaminant reduction or migration is usually required. Also known as *passive bioremediation*, *intrinsic bioremediation*, or *intrinsic remediation*.

Natural (True) Minor Source – A facility containing an emissions unit, or any group of emissions units, that has potential emissions less than the major source threshold for the pollutant(s) being emitted. Sources with actual emissions less than 50% of the major source threshold, regardless of the potential to emit, are treated as true minor sources in that they are not required to have a Title V or synthetic minor permit.

Navigable Water – Any body of water with any connection to interstate waters or commerce. Such waters in the U.S. come under federal jurisdiction and are protected by certain provisions of the Clean Water Act. This includes most surface waters and wetlands.

New Source Performance Standards (NSPS) – Uniform national EPA air emission and water effluent standards that limit the amount of pollution allowed from new sources or from modified existing sources.

New Source Review (NSR) – The process of reviewing application submittals for proposed construction, modification, or reconstruction of sources of air pollution to determine compliance with all regulatory requirements and to ensure that there will not be any adverse air quality impacts, particularly with respect to the National Ambient Air Quality Standards.

Nitrogen Oxides (NO_x) – Seven oxides of nitrogen are formed during combustion processes, all of which are major precursors to the formation of photochemical smog. Nitrogen dioxide (NO₂) is one of the National Ambient Air Quality Standards criteria pollutants.

No Further Action – Determination made by the U.S. Environmental Protection Agency following a site or risk assessment that a site does not pose a significant risk and so requires no further activity under a regulatory corrective action program.

Non-aqueous Phase Liquid (NAPL) – Hydrocarbons that exist as a separate, immiscible phase when in contact with water. Differences in the physical and chemical properties of water and NAPL result in the formation of a physical interface between the liquids that prevents the two fluids from mixing.

Nonattainment Area – Geographic area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act. Such an area may be designated as a particulate, sulfur dioxide, nitrogen dioxide, carbon monoxide, lead, or ozone nonattainment area. An area may be designated as nonattainment for more than one pollutant. Nonattainment areas may be further classified according to their degree of nonattainment. For example, ozone nonattainment areas can be classified as marginal, moderate, serious, severe, and extreme.

Non-persistent Fuel – Highly volatile fuels, such as gasoline, jet fuels, and No. 2 fuel oil. Oil with hydrocarbon fractions of which at least 50% by volume distill at a temperature of 340°C and at least 95% by volume distill at a temperature of 370°C. See also **Group I through IV Petroleum Oils**.

Non-road Engines – A diverse collection of equipment from small equipment like lawnmowers and chain saws to recreational equipment, such as snowmobiles, off-highway motorcycles (dirt bikes), and all-terrain vehicles to excavators and other construction equipment, farm tractors, heavy forklifts, airport ground service equipment, and utility equipment such as generators, pumps, and compressors.

Occupational Safety and Health Act (OSHA) – The legislation that is designed to save lives, prevent injuries, and protect the health of employees in the workplace. OSHA accomplishes these goals through several regulatory requirements including the Hazard Communication Standard and Hazardous Waste Operations and Emergency Response Worker Protection Standards.

Oil – Oil of any kind and any form, such as petroleum and non-petroleum oils including gasoline, diesel, jet fuel, kerosene, crude oil, mineral oil and synthetic oil. Non-petroleum oils are the oils of vegetable, seed, fish, and animal origin as well as fats and greases.

Oil Pollution Act of 1990 (OPA 90) – Legislation that amended the Clean Water Act to expand oil spill prevention activities, improve preparedness and response capabilities, and ensure that companies are responsible for damages from spills.

Oil/Water Separator – A flow-through multichamber tank structure or device designed to separate floating petroleum and suspended solids from wastewater primarily using gravity. Typically, the oil layer is skimmed off and subsequently reprocessed or disposed of. The bottom sediment layer is removed by a scraper (or similar device) and a sludge pump. The water layer is often sent for further treatment, typically via discharge to a publicly owned treatment works.

Oleophilic – Having a strong affinity for oils rather than water.

Onshore Facility – Any facility located in, on, or under any land within the United States, other than submerged lands, that is not a transportation-related facility.

Oxygenates – Hydrocarbons that contain one or more oxygen atoms. The primary oxygenates are alcohols and ethers, including: fuel ethanol, methyl tert-butyl ether (MTBE), ethyl-tert-butyl ether (ETBE), and tert-amyl methyl ether (TAME).

Oxygenated Fuel – Gasoline that has been blended with alcohols or ethers that contain oxygen to reduce carbon monoxide and other emissions.

Ozone – Triatomic oxygen (O₃). A reactive gas produced by photochemical reactions or lightening in the troposphere and by the absorption of ultraviolet radiation in the lower stratosphere. In sufficiently high concentrations at ground level, the gas acts as an irritant to the eyes and respiratory tract. One of the National Ambient Air Quality Standards criteria pollutants.

Ozone-Depleting Substance – A chemical that contributes to the destruction of the stratospheric ozone layer that shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine– and/or bromine-containing compounds (chlorofluorocarbons or halons), which break down when they reach the stratosphere and then catalytically destroy ozone molecules.

Particulate Matter – One of the National Ambient Air Quality Standards criteria pollutants. PM–10 includes inhalable coarse particles such as dust, soot, and other tiny bits of solid materials (less than 10 micrometers) that are released into and move around in the air. PM–2.5 includes fine particles such as those found in smoke and haze that are 2.5 micrometers in diameter or smaller.

Percolating – 1) The movement of water downward and radially through subsurface soil layers, usually continuing downward to groundwater; can involve upward movement of water; 2) slow seepage of water through a filter.

Permanent Closure (UST) – Closure of an underground storage tank that involves a number of steps in 40 CFR 280 designed to ensure that the tank and piping will pose no threat to human health or the environment.

Permanently Closed – Any container or facility that has all material removed from the container and each connecting pipeline. All piping has been disconnected from the container and blanked off, all valves have been closed and locked (except for ventilation valves), and signs are posted stating that it is a permanently closed container, unit, or facility and noting the date of closure.

Permeability – The rate at which liquids pass through soil or other materials in a specified direction.

Permeable Reactive Barrier – A trench below ground filled with reactive material (the barrier) that can treat (adsorption, precipitation, biodegradation) contaminated groundwater as it infiltrates or passes through the barrier.

Persistent Fuel – Fuel that does not break down chemically or that breaks down slowly and remains in the environment once introduced.

Personal Protective Equipment (PPE) – Equipment worn to minimize exposure to a variety of hazards. Examples include gloves, foot and eye protection, face shields, hearing protection, hard hats, respirators, and chemical-resistant clothing.

Pesticide – Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating pests (living organisms that occur where they are not wanted or that cause damage to crops or humans or other animals).

pH – A unit of measure used to express the strength of an acidic or basic solution. pH is equal to the negative logarithm of the concentration of hydrogen ions in a solution. A pH of 7 is neutral. Values less than 7 are acidic, and values greater than 7 are basic.

Photodegradation – A process of decomposing compounds under exposure to certain kinds of radiant energy, such as sunlight or ultraviolet light.

Phytoremediation – Use of plants and trees to remove low concentrations of organic and inorganic compounds from soil and groundwater. Organic compounds are degraded by the plant or microorganism in the root zone. Plants that take up metals can be harvested and disposed.

Piezometer – A non-pumping well, generally of small diameter, which is used to measure the elevation of the water table or potentiometric surface. A piezometer generally has a short well screen; the water level within the casing is considered to be representative of the water table at that particular depth in the aquifer.

Pipeline and Hazardous Materials Safety Administration (PHMSA) – Part of the DOT, PHMSA comprises the Office of Pipeline Safety and the Office of Hazardous Materials Safety.

Pipeline Pumping Station – A facility along a pipeline containing pumps to maintain the desired pressure and flow of product through the pipeline and not containing storage tanks.

Placards – Specific diamond-shaped signs to be affixed on all four sides of any highway vehicle or railcar carrying 1,000 lb or more of hazardous materials or any quantity of substances belonging to Department of Transportation hazard classes: poison gas, explosives, radioactive, or flammable solids. The placard represents a hazard of the material. Refer to 49 CFR 172 Subpart F for specific placarding requirements.

P-Listed Waste or Acute Hazardous Waste (AHW) – Specific off-specification or discarded commercial chemical products, container residues, or spill residues identified in 40 CFR 261.33(e). This listing of chemicals is applicable to technically pure-grade products where the chemical is the sole active ingredient. These chemicals do not become hazardous waste until they are discarded or spilled. AHWs are more stringently regulated than other hazardous waste.

Plume – 1) A visible or measurable discharge of a contaminant from a given point of origin; can be visible or thermal in water, or visible in the air as, for example, a plume of smoke; 2) area downwind within which a release could be dangerous for those exposed to leaking fumes.

Point Source – A stationary location or fixed facility from which pollutants are discharged; any single identifiable source of pollution, such as a pipe, ditch, channel, conduit, ship, ore pit, or factory smokestack.

Pollution Prevention – This means source reduction as defined in the Pollution Prevention Act and other practices that reduce or eliminate the creation of pollutants through 1) increased efficiency in the use of raw materials, energy, water, or other resources or 2) protection of natural resources by conservation.

Pollution Prevention Act – Legislation that establishes the national policy that “pollution should be prevented or reduced at the source whenever feasible. Pollution that cannot be prevented should be recycled in an environmentally safe manner. Disposal or other releases of pollutants into the environment should be employed only as a last resort and should be conducted in an environmentally sound manner.”

Potential to Emit (PTE) – Maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any enforceable physical or operational limitation on the capacity of the emissions unit or facility to emit a pollutant, including any air pollution control equipment and any restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design provided that such limitation is practically enforceable.

Pounds per Square Inch Absolute (psia) – Common units for the expression of absolute pressure exerted by gases relative to zero pressure.

Pressurized Piping – A system of pipes in which water, wastewater, or other liquid is pumped to a higher elevation.

Prevention of Significant Deterioration (PSD) – A Clean Air Act regulatory program under which air quality in an area can only worsen by a fixed amount for particular pollutants above a defined baseline, even if the National Ambient Air Quality Standards for the pollutant is met.

Process Vent – A gas stream point of discharge to the atmosphere or entry into a control device.

Publicly Owned Treatment Works (POTW) – A municipal wastewater treatment plant that receives domestic sewage from households, office buildings, factories, and other places where people live and work and industrial wastewater. Treatment at a POTW is regulated by the Clean Water Act.

Pyrolysis – Decomposition or transformation of organic material at elevated temperature in the absence of oxygen.

RBCA – See **Risk-Based Corrective Action**.

Reactivity (Characteristic) – The characteristic that identifies hazardous waste that readily explode or undergo violent reactions (see 40 CFR 261.23).

Receptor – Person, plant, animal, or geographical location that is exposed to a chemical or physical agent released to the environment by human activity.

Reciprocating Internal Combustion Engine (RICE) – Any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work. A RICE may be fueled by gasoline, diesel fuel, natural gas, or other type of fuel.

Rectifier – An electrical device that converts alternating current to direct current. A device that allows one-way flow of electrons.

Recycling – The separation and collection of wastes, their subsequent transformation or remanufacture into usable or marketable products or materials, and the purchase of products made from recyclable materials.

Regulated Substance – 1) For the purposes of underground storage tank regulations, any hazardous substance defined under the Comprehensive Environmental Response, Compensation, and Liability Act in 40 CFR 302.4 and petroleum; 2) regulated substance for the purpose of the Clean Air Act Section 112(r) means chemicals listed in 40 CFR 68.130 subject to the accident prevention program if present above specific threshold quantities.

Reid Vapor Pressure (RVP) – The absolute vapor pressure of volatile crude oil and volatile non-viscous petroleum liquids, except liquid petroleum gases, as determined by an analytical procedure (American Society for Testing and Materials Method D323–82).

Release – Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous or toxic chemical or extremely hazardous substance.

Remedial Action Objectives (RAO) – Site-specific remediation goals or descriptions of what the remedial action should accomplish at a given site. RAOs are formed based on the contaminants of concern (COC), the impacted media, fate and transport of COCs, potential exposure routes, and receptors. RAOs should address how to protect human health and the environment rather than a specific treatment technology.

Renewable Energy – Energy produced by solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.

Reportable Quantity (RQ) – The minimum amount of a hazardous substance or extremely hazardous substance that requires agency notification if released to the environment. The RQ is usually expressed in pounds (lb).

Resilient Foam-Filled Seal – A primary or secondary seal that serves as a vapor conservation device by closing the annular space between the edge of a floating-roof deck and the tank wall. These seals work because of the expansion and contraction of a resilient material (usually a foam core surrounded by a coated fabric) to maintain contact with the tank shell while accommodating varying annular rim space widths. The seals allow floating roofs to move up and down freely, without binding. Polyurethane-coated nylon fabric and polyurethane foam are commonly used material.

Resource Conservation and Recovery Act (RCRA) – The federal legislation addressing hazardous waste management. Establishes duties and responsibilities of hazardous waste generators, transporters, storers, treaters, and disposers. Authorizes EPA to mandate cleanup of hazardous waste releases through corrective action orders. Regulates underground storage tanks, and imposes structural integrity and management practice requirements.

Rich Burn Engine – A gas-fired spark-ignited engine that is operated with an exhaust oxygen content less than 4% by volume. Engines originally manufactured as rich-burn engines, but modified prior to December 19, 2002, with passive emission control technology for NO_x (such as precombustion chambers) are considered **lean burn engines**. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio are considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2%.

Risk Assessment – Qualitative and quantitative evaluation of the probabilities and magnitude of harm to human health or the environment associated with the actual or potential presence and/or use of specific pollutants.

Risk-Based Corrective Action (RBCA) – A streamlined approach in which exposure and risk assessment practices are integrated with traditional components of the corrective action process to ensure that appropriate and cost-effective remedies are selected, and that limited resources are properly allocated.

Risk-Based Decision-Making – A process that uses risk and exposure assessment concepts to help state agencies implementing underground storage tank regulations establish cleanup priorities and requirements.

Risk Characterization – The last phase of the risk assessment process that estimates the potential for adverse health or ecological effects to occur from exposure to a pollutant and evaluates the uncertainty involved.

Sacrificial Anode – An easily corroded metallic material deliberately installed in a pipe or tank to sacrifice it to corrosion while the rest of the pipe or tank remains relatively corrosion free.

Safety Data Sheet (SDS) – Product safety information sheet prepared by manufacturers and marketers of products. Consists of a compilation of information required under the Occupational Safety and Health Act Communication Standard on the identity of hazardous chemicals, health, and physical hazards, exposure limits, and precautions. The Emergency Planning and Community Right-to-Know Act requires facilities to submit SDSs under certain circumstances.

Satellite Accumulation Areas – Location that allows limited quantities of hazardous waste to accumulate at or near the point of generation for more than 90 days for large quantity generators and 180 days for small quantity generators without a permit. The waste must be in labeled containers and properly managed (see 40 CFR 262.34(c)).

Saturated Zone – The zone in which all the voids in the rock or soil are filled with water at greater than atmospheric pressure. The water table is the top of the saturated zone in an unconfined aquifer.

Secondary Containment – A wall, lining, or other type of material that provides a barrier between a tank or other container and the environment so that leaks can be contained.

Significant and Substantial Harm Facilities – Refer to the definitions in *Appendix 1–2*.

Site Assessment – The process of determining whether contamination is present on a parcel of property.

Slotted Guidepoles – Devices used on tanks to guide the motion of the external floating roof and sample the contents of the tank for environmental and quality control purposes. Without emission controls, these guidepoles operate as chimneys and increase air emissions. The slots and the space between the guidepoles and the tank's roof are observable emission pathways that violate the "no visible gap" prohibition in NSPS 40 CFR 60 Subparts Ka and Kb.

Small Quantity Generator (SQG) – An individual or enterprise that produces 220 to 2,200 lb per month of hazardous waste, with some exceptions.

Small Quantity Handler – A universal waste handler who does not accumulate 5,000 kg (11,000 lb) or more of total universal waste (certain batteries, pesticides, thermostats, lamps, calculated collectively) at any time.

Soil Biopile – See **Biomounding**.

Soil Vapor Extraction (SVE) – A treatment technology used to remove volatile organic compounds from unsaturated soil by applying a vacuum through a system of vapor extraction wells. The extracted vapors may require treatment prior to discharge.

Solid Waste – Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Also, under the RCRA hazardous waste law, solid waste includes liquids and gases in containers (see 40 CFR 260 and 261).

Solidification – Treatment processes involving adding materials (such as Portland cement) designed to improve the handling and physical characteristics of waste, remove free liquids, and limit the mobility of hazardous constituents in the waste.

Sorbents – Insoluble products comprised of simple organic, mineral, or synthetic materials used to remove or collect spilled oil or chemicals through absorption or adsorption, or both. After use, all sorbents must be disposed of properly.

Spark Ignition Internal Combustion Engine (SI ICE) – An engine that uses a sparking device or spark plug to ignite the fuel, which is usually gasoline. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Specific Gravity – The density of a substance compared to the density of water. Substances with a specific gravity greater than 1 are heavier than water, and those with a specific gravity of less than 1 are lighter than water.

Spill Prevention, Control, and Countermeasure (SPCC) – Regulations establishing spill prevention procedures and equipment requirements for non-transportation-related facilities with certain aboveground or underground storage capacities that could reasonably be expected to discharge oil into or upon navigable waters or adjoining shorelines.

SPCC Plan – Document required by 40 CFR 112.3 that details the equipment, manpower, procedures, and steps to prevent, control, and provide adequate response to releases of oils and substances that may cause a sheen on water. NPDES permits often require that a facility's SPCC Plan address hazardous substances.

Standing Storage Losses – Emissions or losses from evaporation of volatile organic compounds during storage. Can be caused by changes in temperature and barometric pressure (includes losses from rim seals systems, deck fittings, and/or deck seams); sometimes called *breathing losses*.

State Emergency Response Commission (SERC) – Commission appointed by each state governor according to the requirements of Title III of the Superfund Amendments and Reauthorization Act. The SERCs designate emergency planning districts, appoint local emergency planning committees, and supervise and coordinate their activities.

State Implementation Plan (SIP) – Document required by Section 110 of the Clean Air Act to be submitted by a state to EPA. SIPs are required for all states with nonattainment areas, and consist of three parts: an emissions inventory, a listing of measures to be implemented to achieve attainment, and an attainment schedule.

Stormwater – Rain water and/or melted snow that runs off land surfaces directly into drainage facilities, rivers, lakes, streams, and other waters.

Stratospheric – Relating to the stratosphere or the portion of the atmosphere 10 to 30 miles above the earth's surface. Ozone in the stratosphere filters out harmful rays from the sun.

Substantial Harm Facility – Refer to the definitions in *Appendix 1–2*.

Suction Piping – Piping in which liquids are drawn by applying a negative pressure.

Sufficiently Impervious – Containment systems made of materials that retain released oil long enough to allow cleanup to occur before a discharge to the soil, surface water, or groundwater. EPA expects facilities to use good engineering practice and consider a material's permeability or hydraulic conductivity when meeting this requirement.

Sufficient Freeboard – A criteria when designing secondary containment systems and sizing wall height and capacity of the anticipated spill holding volume. EPA recommends good engineering practice with consideration of tank size, safety, and precipitation. For instance, 110% of the storage tank capacity or the use of precipitation data from the 25-year, 24-hour storm event may be acceptable design criterion.

Sulfur Dioxide (SO₂) – One of the National Ambient Air Quality Standards criteria pollutants. Sulfur dioxide is a gas produced during combustion of fuels that contain sulfur, most notably coal in power plants. Some industrial processes, such as production of paper and smelting of metals, also produce sulfur dioxide. Sulfur dioxide is closely related to sulfuric acid, a strong acid. Sulfur dioxide plays an important role in the production of acid rain.

Superfund – The program operated under the legislative authority of the Comprehensive Environmental Response, Compensation, and Liability Act and Superfund Amendments and Reauthorization Act that funds the cleanup of spills and sites containing hazardous waste and hazardous constituents that pose a threat to human health and the environment. This program includes establishing the National Priorities List, investigating sites for inclusion on the list, determining their priority, and conducting and/or supervising cleanup and other remedial actions.

Superfund Amendments and Reauthorization Act (SARA) – Enacted in 1986, this Act reauthorized and amended the Comprehensive Environmental Response, Compensation, and Liability Act to include additional enforcement authorities, technical requirements, community involvement requirements, and various clarifications. SARA Title III authorized the Emergency Planning and Community Right-to-Know Act.

Sustainable Design – The art of designing physical objects, places, products and services to comply with the principals of sustainable development.

Sustainable Development – Establishing policies and principals integrating environmental, economic, social, and cultural diversity factors, among others. It provides a context in which to improve overall sustainability.

Sustainability – Meeting the needs of the present without compromising the ability of future generations to meet their own needs, or compromising the ability of your organization to meet mission needs and operational requirements.

Synthetic Minor Source – Sources of air pollution (one or more pieces of equipment or a facility) that have minimized their potential to emit to below major source thresholds by imposing federally enforceable controls and/or operation constraints (limiting the hours of operation or the type or amount of material combusted, stored, or processed.) Synthetic minor sources are also sources that have actual emissions between 50 and 100% of the applicable Title V major source thresholds.

Tank Tightness Testing – A variety of release detection methods used to determine if a tank is leaking; most of these methods involve monitoring changes in product level or volume in a tank over a period of time.

Tank-Bottom Wastewater – Water that condenses inside a storage tank and settles at the bottom of the tank because it has a greater density than the liquid in the tank.

Tank-Cleaning Wastewater – Wash water from tank-cleaning operations that may contain hydrocarbons. This wastewater may be generated during a change in service (for example, from crude oil to gasoline), when a tank is upgraded, or prior to any significant internal inspections.

Temporary Closure – Method by which an underground storage tank owner or operator can close a tank temporarily and bring it back into service at a later date. The owner and operator must continue to operate and maintain the corrosion protection system and the leak detection system if any product remains in the tank.

Threshold Planning Quantity (TPQ) – A quantity designated for each chemical on the list of extremely hazardous substances that triggers notification by facilities to the State Emergency Response Commission that such facilities are subject to emergency planning requirements under Title III of the Superfund Amendments and Reauthorization Act.

Threshold Quantity (TQ) – A quantity designated for each regulated substance listed in U.S. Environmental Protection Agency chemical accident prevention provisions. Facilities having substances in excess of a TQ for a regulated substance trigger the need for a risk management program (see 40 CFR 68).

Total Maximum Daily Load – A calculation of the maximum amount of a pollutant or “load” that a waterbody can receive and still safely achieve its water quality standards. The load is then allocated by the designated state or local agency among the sources contributing pollution to the impaired water body (point sources and non-point sources), such as wastewater treatment plants, stormwater, septic systems, air deposition, animal feeding operations, and other types of agriculture.

Total Suspended Solids (TSS) – A measure of the amount of particulate matter that is suspended in a water sample. The measure is obtained by filtering a water sample of known volume. The particulate material retained on the filter is then dried and weighed.

Toxic Chemical – Any chemical listed in U.S. Environmental Protection Agency rules as “Toxic Chemicals Subject to Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.”

Toxics Release Inventory (TRI) – Database of toxic releases in the U.S. compiled from Title III Section 313 reports from the Superfund Amendments and Reauthorization Act. The document requiring information from facilities that manufacture, process, or use (in quantities above a specific amount) chemicals listed under Title III of SARA is called the Form R.

Toxicity Assessment – Characterization of the toxicological properties and effects of a chemical, with special emphasis on establishment of dose–response characteristics.

Toxicity Characteristic Leaching Procedure (TCLP) – A laboratory procedure (EPA Method 1311) that measures the mobility of organic and inorganic chemical contaminants in wastes. This test produces an estimate of the potential for leachate formation by a waste if placed in the ground.

Toxicity Characteristic – The characteristic that identifies hazardous wastes as those with the potential of leaching various metals, pesticides, or organic compounds that could pose a potential health hazard when improperly managed. More specifically, wastes exhibit the characteristic of toxicity if an extract of the sample is analyzed using the Toxicity Characteristic Leaching Procedure and is found to contain any one of 39 compounds at or above specified concentrations (see 40 CFR 261.24).

Toxicity – The degree to which a substance or mixture of substances can harm humans or animals. *Acute toxicity* involves harmful effects in an organism through a single or short-term exposure. *Chronic toxicity* is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure sometimes lasting for the entire life of the exposed organism. *Subchronic toxicity* is the ability of the substance to cause effects for more than 1 year but less than the lifetime of the exposed organism.

Transport Vehicle – A cargo tank or tank car.

Transportation-Related – Interstate and intrastate onshore and offshore pipeline systems, including pumps and related equipment and inline or breakout storage tanks needed for continuous operation of a pipeline system.

Transporter – Hauling firm that picks up properly packaged and labeled hazardous waste from generators and transports it to designated facilities for treatment, storage, disposal, or recycling. Such transporters are subject to the U.S. Department of Transportation hazardous materials shipping requirements and U.S. Environmental Protection Agency hazardous waste regulations.

Treatment, Storage, Disposal, and Recycle Facility (TSDRF) – Facilities engaged in the treatment, storage, disposal, or recycling of hazardous waste. These facilities have hazardous waste permits under Resource Conservation and Recovery Act regulations.

Triad Approach – An approach to environmental investigation and remediation and decision making that is grounded in the management of decision uncertainty. Decisions are based on environmental data, sampling, analytical, and relational uncertainties of that data must be managed. This approach is captured in the three elements of the triad, which are systematic project planning, real-time measurement technologies, and dynamic work strategies.

Two-stroke – A type of engine that completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke.

U-Listed Waste – Specific off-specification or discarded commercial chemical products, container residues, or spill residues identified in 40 CFR 261.33(f). This listing of chemicals is applicable to technically pure-grade products where the chemical is the sole active ingredient. These chemicals do not become hazardous waste until they are discarded or spilled.

Ultra-low Sulfur Diesel (ULSD) Fuel – Also known as ULSD or S15, a U.S. diesel fuel with a sulfur content not to exceed 15 parts per million.

Ultrasonic (Testing) – A method of measuring the thickness of a tank shell and determining the location, size, and nature of defects. For instance, some instruments transmit electrical energy into ultrasonic waves (acoustic waves with frequencies above 20 kilohertz and therefore are not audible by the human ear) that travel through the metal and are reflected back. Travel time intervals are measured and calibrated to shell thickness.

Underground Storage Tank (UST) – A tank and any underground piping connected to the tank that is used to contain an accumulation of regulated substances and that has at least 10% of its combined volume underground.

Uniform Hazardous Waste Manifest – A form or shipping paper used by haulers transporting hazardous waste that lists U.S. Environmental Protection Agency identification numbers, type, and quantity of waste; U.S.

Department of Transportation shipping description, the generator it originated from, the transporter that shipped it; and the treatment, storage, or disposal facility to which it is being shipped. It includes copies for all participants in the shipping process.

Universal Wastes – Consist of recalled and unused pesticides, hazardous waste batteries (such as lead-acid, nickel-cadmium, alkaline, silver-oxide, lithium, and nickel-metal hydroxide), mercury-containing equipment (such as thermostats), and spent lamps (such as fluorescent, neon, mercury vapor, high-pressure sodium, high-intensity discharge, and metal halide lamps).

Unsaturated Zone – The area above the water table where soil pores are not fully saturated, although some water may be present.

Used Oil – Any oil that has been refined from crude or synthetic oil that has been used and, as a result of such use, is contaminated by physical or chemical impurities.

Vadose Zone – The zone between land surface and the water table within which the moisture content is less than saturation (except in the capillary fringe) and pressure is less than atmospheric. Soil pore space also typically contains air or other gases. The capillary fringe is included in the vadose zone.

Vapor Balance System – Combination of equipment (connectors, piping, storage tanks, hoses, pressure/vacuum vent valves, gaskets, tank truck) to control emissions at dispensing facilities. This equipment, taken together, work as a system to route the vapors displaced from the storage tank back into the delivery tank truck (known as Phase I vapor balance systems). Vapor balance systems between the storage tank and the vehicle being refueled is referred to as Phase II vapor balance systems.

Vapor Capture or Collection System – Any combination of hoods or collection headers and associated ductwork that captures or contains organic vapors so they may be directed to an abatement or recovery device.

Vapor Control Device or System – Equipment, processes, or actions used to reduce air pollution. The extent of pollution reduction varies between technologies and measures. In general, control technologies and measures that do the best job of reducing pollution are required in the areas with the worst pollution.

Very Small Quantity Generators (VSQG) – An individual or enterprise that produces less than 220 lb of hazardous waste per month. Exempt from most regulations, VSQGs are required to determine whether or not their waste is hazardous, and comply with 40 CFR 262.14.

Volatile Liquids – Liquids that easily vaporize or evaporate at room temperature.

Volatile Organic Compound (VOC) – Any organic compound that participates in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity.

Volatile – Any substance that evaporates or vaporizes rapidly at room temperature.

Volatilization (Volatilize) – The process of evaporation or transfer of a chemical from the aqueous or liquid phase to the gas phase. Solubility, molecular weight, and vapor pressure of the liquid and the nature of the gas-liquid interface affect the rate of volatilization.

Waste Minimization – Measures or techniques that reduce the amount of wastes generated during industrial production processes via source reduction, recycling, and other efforts to reduce the amount of waste going into the waste stream.

Water Table – The uppermost level of groundwater or the geological formation that is saturated with water.

Weathering – The process during which a complex compound is reduced or broken down to its simpler component parts through a combination of chemical, physical, geological, and biological processes over time.

Wiper Seal – A primary or secondary seal that serves as a vapor conservation device by closing the annular space between the edge of a floating-roof deck and the tank wall. Wiper seals generally consist of a continuous blade of flexible material fastened to the floating-roof deck that covers the annular space and contacts the tank shell. Various materials are commonly used to make the wipers or blades, such as rubber, urethane, or plastic.

Withdrawal Losses – The combined loss or emissions from filling and emptying a floating-roof tank containing volatile organic liquids. These losses consist of losses associated with the evaporation of liquid adhering to the inside of the tank shell and any fittings in contact with the liquid contents of the tank that extend through the floating roof.

Working Losses – The combined loss or emissions from filling and emptying a fixed-roof tank containing volatile organic liquids. These losses consist of losses associated with the displacement of vapors. Vapors are displaced during filling operations as a result of an increase in the liquid level in the tank and a corresponding decrease in vapor headspace. As the liquid increases, the pressure inside the tank exceeds the relief pressure and vapors are expelled from the tank.

Zero-net-energy Building – A building that is designed, constructed, and operated to require a greatly reduced quantity of energy to operate. It meets the balance of energy needs from sources of energy that do not produce greenhouse gases, and therefore results in no net emissions of greenhouse gases and is economically viable.