COMMONLY USED ENVIRONMENTAL TERMS

A

Abandoned Well. A well whose use has been permanently discontinued or a well in a state of disrepair such that it cannot be used for its intended purpose. A well that has been permanently closed off to prevent exposure to contaminated groundwater.

Abatement. A method of reducing the degree or intensity of pollution, or eliminating pollution. Abatement methods include the restoration, reclamation, or recovery of natural resources.

Aboveground Storage Tank (AST). Any tank, including aboveground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum substances, and 90% of the volume or more is above the surface of the ground.

Absorption. The penetration of a substance into or through another.

Accident Potential Zone (APZ). Area shown to have a high potential for aircraft accidents.

Accuracy. The degree of closeness between a measured value and a true or expected value. In laboratory terms, can be measured as the percent recovery of a method spike.

Acquisition. Obtaining use or control of real property by purchase, condemnation, donation, exchange, easement, lease revestment, and/or recapture.

Action Levels. In the Superfund program, the existence of a contaminant concentration in the environment high enough to warrant action or trigger a response under the Superfund Amendments and Reauthorization Act and the National Oil and Hazardous Substances Pollution Contingency Plan. The term can be used similarly in other regulatory programs.

Activated Carbon. A highly adsorbent form of carbon used to remove odors and toxic substances from liquid or gaseous emissions. In waste treatment, activated carbon is used to remove dissolved organic matter from wastewater.

Active Ingredient. In any pesticide product, the component that kills, or otherwise controls, target pests. Pesticides are regulated primarily on the basis of active ingredients.

Acute Health Effects. Health effects that occur or develop rapidly after exposure to a substance.

Adaptation. Changes in an organism's structure that helps it adjust to its surroundings.

Adjacent Property. (1) Property adjacent to base boundary (i.e., having contiguous border with base boundary); (2) property within approximately 0.25 mile off the base boundary with potential environmental concerns, or (3) properties located between 0.25 and 1.0 mile from the base boundary with potential environmental concerns identified through a records search and/or visual inspections.

Administrative Record (AR). An official, legal project file maintained at the project site that contains all documents and detailed information regarding environmental cleanup activities ongoing at McClellan. All documents and information used to develop a record of decision for remedial action are located in the AR. The AR is made available for public review.

Adsorption. Process by which atoms, molecules, or ions are taken up and retained on the surfaces of solids by chemical or physical binding.

Aeration Tank. A chamber used to inject air into water.

Aerobic. Life or processes that require the presence of oxygen.

Agency for Toxic Substances and Disease Registry (ATSDR). A federal public health agency whose mission is to prevent or mitigate adverse human health effects and diminished quality of life resulting from exposure to hazardous substances in the environment. ATSDR has performed a public health assessment, health consultations, and health studies at McClellan. ATSR provided a health education program for local health care providers in 1997.

Agricultural Pollution. The liquid and solid wastes from farming, including runoff and leaching of pesticides and fertilizers; erosion and dust from plowing; animal manure and carcasses; crop residues; and debris.

Air Contaminant. Any particulate matter, gas, or combination thereof, other than water vapor or natural air.

Air Force Real Property Agency (AFRPA). The AFRPA's mission is to execute real and personal property disposal and post closure/realignment environmental programs for Air Force bases being closed or realigned under the authorities of the Base Closure and Realignment Act of 1988 and the Defense Closure and Realignment Act of 1990.

Air Mass. A body of air that exhibits the same meteorological or polluted characteristics while set in one location, e.g., a heat inversion or smogginess. These characteristics can change over time.

Air Pollutant. Any substance in air that could, if in high enough concentration, harm man, other animals, vegetation, or material.

Air Quality Criteria. The levels of air pollution and lengths of exposure above which adverse health and welfare effects may occur.

Air Quality Standards. The level of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

Air Stripping. A treatment system that removes, or "strips," volatile organic compounds from contaminated groundwater or surface water by forcing an air stream through the water and causing the compounds to evaporate.

Alpha Particle. A form of ionizing radiation. An alpha particle consists of two protons and two neutrons, and cannot penetrate a sheet of paper.

Ambient Air Quality Standards (AAQS). Ambient air quality standards are a cornerstone of programs to prevent or abate the effects of air pollution. Ambient air quality standards establish the maximum allowable levels of air pollutants. These standards are adopted in consideration of health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy and other relevant factors.

Ambient Blank. A field quality control sample of organic free water exposed to ambient conditions at the well site. The sample is used assess the potential for contaminant introduction from ambient sources that may affect the groundwater sample. This is only analyzed for volatile organic compounds.

American Society for Testing and Materials (ASTM). A voluntary membership organization with members from a broad spectrum of individuals, agencies, and industries concerned with materials. As the world's largest source of voluntary consensus standards for materials, products, systems and services, ASTM is a resource for sampling and testing methods, health and safety aspects of materials, safe performance guidelines, and effects of physical and biological agents and chemicals.

Anaerobic. A life or process that occurs in the absence of oxygen.

Analytes. The chemicals for which a sample is analyzed.

Analytes of Interest. Those chemicals found most frequently and at the highest concentrations at a specific site.

Annular Space. The open space between the wall of a borehole and the well casing.

Antibodies. Proteins produced in the body by immune system cells in response to antigens, and capable of combining with antigens.

Antigen. A substance that causes production of antibodies when introduced into animal or human tissue.

Applicable or Relevant and Appropriate Requirement (ARAR). Cleanup standards, standards of control, and other environmental protection requirements, criteria, or limitations, promulgated in federal or state regulations that define remedial action requirements at CERCLA sites. These requirements are established by the installation and approved by the regulatory agencies to determine action levels at a specific site.

Applied Action Level. Recommended drinking water quality guidelines developed by Cal/EPA to identify contaminant concentrations that pose potential health risks.

Aquifer. A layer of rock, sand, or gravel below the ground surface that has all open spaces between rock or soil grains filled with water. Aquifers can supply useable quantities of groundwater through wells and springs.

Aquitard. A confining bed that retards but does not prevent the flow of water to or from an adjacent aquifer.

Arbitration. A process for the resolution of disputes. Decisions are made by an impartial arbitrator selected by the parties. These decisions are usually legally binding.

Area of Concern (AOC). An individual site, multiple sites or program area identified through an environmental assessment or site investigation as a potential threat to human health or the environment that requires further investigation.

Area Source. Any small source of unnatural air pollution that is released over a relatively small area and therefore cannot be classified as a point

B

Bacteria. Microscopic living organisms that can aid in pollution control by consuming or breaking down organic matter in sewage, or by similarly acting on oil spills or other water pollutants. Bacteria in soil, water, or air can also cause human, animal, and plant health problems. The singular form of bacteria is bacterium.

Barrier Well. A well installed to intercept and pump out a plume of contaminated groundwater.

Baseline Concentration. A concentration of a pre-existing chemical in groundwater. This is referred to determine if the chemical is increasing toward a maximum contaminant level (MCL). This is an important measurement because some inorganic substances (such as metals) occur naturally in soil and groundwater.

Base Realignment and Closure Commission (BRAC). The federal commission created to objectively select military installations to close as a part of Department of Defense downsizing.

Base Transition Coordinator (BTC). The local Department of Defense point of contact that works as an ombudsman for the base and community.

Baseline Risk Assessment (BRA). A key part of the remedial investigation process that provides a quantitative evaluation of the potential threat to human health and the environment in the absence of any remedial action. It provides the basis for determining whether remedial action is necessary; the justification for performing remedial actions; and the basis for finding of imminent and substantial endangerment to public health or the environment. See also Health Risk Assessment.

Bench Scale. Treatability tests performed on a small scale, usually in a laboratory, to better define parameters of a treatment technology.

Bentonite Grout. An aluminum silicate clay to which a small amount of magnesium oxide is added that swells and forms a viscous suspension when mixed with water. Upon drying, it forms a hard cement-like material. It is commonly used to refill and seal soil coring holes and as a fill or grout material around well casings or to fill and seal off abandoned wells.

Berm. A ledge or shoulder, as along the edge of a paved road.

Beta Particle. A form of ionizing radiation. A beta particle is an electron and can penetrate the outer layers of human skin.

Bioaccumulation. The process that occurs when toxic substances are passed up the food chain from soil to plants to grazing animals to human beings.
Bioassay. A method for quantitatively determining the concentration of a substance by its effect on the growth of a suitable animal, plant, or microorganism under controlled conditions. The term is often used to mean cancer bioassays.

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

Biological Oxygen Demand (BOD). A test for water pollution. It measures the oxygen requirements for aerobic organisms as they digest the organic materials in a sample. Chemical oxygen demand (COD) is a somewhat more stringent test.

Biological Treatment. A process by which hazardous waste is rendered non-hazardous or is reduced in volume by relying on the action of microorganisms to degrade organic waste.

Bioventing. An in situ remediation technology that uses indigenous microorganisms to biodegrade organic constituents adsorbed to soils in the unsaturated zone.

Borehole. A hole made by boring into the ground to study stratification, to obtain natural resources, or to release underground pressures. Also known as a wellbore.

BRAC Cleanup Plan (BCP). The BCP describes the status, management, and response strategy, and action items related to ongoing BRAC environmental restoration and associated compliance programs at an installation. These programs support full restoration of the installation, as necessary, to meet the requirements for property disposal and reuse activities following its closure.

BRAC Cleanup Team (BCT). A team to assist McClellan with environmental problems that could be perceived as an impediment to reuse. The BCT is made up of representatives from the Air Force and regulatory agencies.

BRAC Environmental Coordinator (BEC). The Air Force representative responsible for ensuring that environmental issues do not impede reuse while maintaining cleanup efforts to protect public health and safety and the environment.

By-product. Material, other than the principal product, that is generated as a consequence of an industrial process.

C

Cadmium (Cd). A naturally occurring chemical element. Cadmium is a metal used in metal plating operations and is considered a hazardous material.

California Code of Regulations (CCR). California state regulations are published in the California Code of Regulations, previously called the California Administrative Code. The CCR is updated yearly and incorporates all legislation and final regulations enacted during the year.

California Natural Diversity Database (CNDDB). A database created and maintained by the U.S. Department of Fish and Game. It lists the species and subspecies of animals found within California or off the coast of the state that may have been classified as endangered or threatened.

California Assessment Manual. A procedure for evaluating the leachability of certain metals, pesticides, or organics from a solid or semi-solid hazardous waste sample.

Cancer. The development of a malignant tumor or abnormal formation of tissue.

Capillary Fringe. The zone of a porous medium above the water table within which the porous medium is saturated by water under pressure that is less than atmospheric pressure.

Capture Zone. As relates to groundwater, is the plan view of a groundwater volume that is estimated to be "captured" by the pumping of extraction wells.

Carbon Adsorption. A treatment system designed to remove contaminants from ground water and surface water by forcing the contaminated water through tanks containing activated carbon, a specially treated material that attracts the contaminants.

Carbon Dioxide (CO2). A colorless, odorless, nonpoisonous gas that results from fossil fuel combustion and is normally a part of the ambient air.

Carbon Monoxide (CO). A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion.

Carcinogen. A chemical with the potential to cause cancer.

Casing. (1) Metal or plastic pipe or tubing that is welded or screwed together and lowered into a borehole to prevent entry of loose rock, gas, liquid; (2) the pipe between the intake (screen) section and the surface in a well, serving as a housing for pumping equipment and conduit for the pumped water

Catalytic Oxidation. This process utilizes a catalyst (fixed-bed or fluidized-bed) to lower the temperature required for a natural gas burner to oxidize VOCs, producing carbon dioxide, water vapor, and acid gases (HO and HF). The acid gases are then treated by a. caustic scrubber, using sodium hydroxide (NaOH), producing sodium chloride (NaCl). Scrubber sump blowdown purge the salt from the system.

Chain-of-Custody Form. Written forms indicating the date and time of sampling events, procedures for handling of the sample, and date and time of transfer from sampler to laboratory. The protocol is to ensure the integrity of samples and resulting analytical results.

Characteristic. Any one of the four categories used to define hazardous waste: ignitability, corrosivity, reactivity, and toxicity.

Chemical. Any element, chemical compound, or mixture of elements and/or compounds.

Chemical Treatment. Any one of a variety of technologies that uses chemicals, or a variety of chemical processes, to treat waste.

Chemicals of Potential Concern. Chemicals that are potentially site-related and whose data are of sufficient quality for use in the quantitative risk assessment.

Chemical Oxygen Demand (COD). Test that gives an indication as to degree of water pollution caused by organic substances. Based on the amount of oxygen that would be required for complete oxidation of a given sample. A more stringent test than the biological oxygen demand (BOD).

Chlorinated Hydrocarbons. Hydrocarbons that contain chlorine atoms, which include a class of persistent, broad-spectrum insecticides that linger in the environment and accumulate in the food chain. Among them are dichlorodiphenyl-trichloroethane (DDT), aldrin, dieldrin, heptachlor, chlordane, lindane, endrin, mirex, hexachloride, and toxaphene. Another example is tetrachloroethene, used as an industrial solvent.

Chlorination. The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.

Chlorofluorocarbons (CFCs). A family of inert, nontoxic, and easily liquefied chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents and aerosol propellants. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where their chlorine components destroy ozone.

Chronic Health Effects. Long-term effects or those that are revealed after the elapse of some time, such as cancer, from a one-time or a repeated exposure to a substance.

Clarifier. An apparatus for removing (by gravity) settled solids from a fluid.

Clean Air Act (CAA). Federal law mandating and enforcing air pollutant emissions standards for stationary sources and motor vehicles.

Clean Water Act (CWA) of 1972. Federal law regulating the discharge of pollutants into surface waters, such as rivers and lakes; formally known as the Federal Water Pollution Control Act.

Cleanup. An action taken to deal with a release or threat of release of a hazardous substance that could affect humans and/or the environment. The term "cleanup" is sometimes used interchangeably with the terms remedial action, removal action, response action, or corrective action.

Cleanup Zone. Estimated extent of contamination cleanup, usually used when referring to soil vapor extraction wells. May or may not be the same as radius of influence.

Closed-Loop Recycling. Reclaiming or reusing wastewater for non-potable purposes in an enclosed process.

Closure. Actions taken by the owner or operator of a hazardous waste facility to prepare the site for long-term care and to make it suitable for other uses after the facility or site has stopped accepting waste.

Coagulation. A clumping of particles in wastewater to settle out impurities. Chemicals such as lime, alum, and iron salts often induce coagulation.

Code of Federal Regulations (CFR). Federal regulations are published in the CPR. The CFR is published in books and updated in the Federal register.

Combustion. Burning, or rapid oxidation, accompanied by release of energy in the form of heat and light.

Combustion Product. Substance produced during the burning or oxidation of a material.

Command Post. Facility located at a safe distance upwind and upgradient from an accident site, where the on-scene coordinator, responders, and technical representatives can make response decisions, deploy personnel and equipment, maintain liaison with news media, and handle communications.
Comment Period. Time provided for the public to review and comment on a proposed action or ruling after it is published. A minimum three-week period is held to allow community members to review and comment on draft remedial investigation/feasibility study (RI/FS) reports and proposed plans. The comment period will vary depending on the item(s) being reviewed.

Community Advisory Panel (CAP). A group of concerned community members organized through ATSDR to review and comment on the health assessment generated by that agency.

Community Environmental Response Facilitation Act (CERFA). An amendment to CERCLA that established new procedures or contamination assessment, remediation (cleanup), and regulatory agency notification and concurrence for federal facility closures. CERFA requires the military to identify uncontaminated property; the primary goal of CERFA is to accelerate the transfer of property that can be immediately reused and redeveloped.

Community Interviews. Informal face-to-face or telephone interviews held with selected local residents, government officials, community groups, media representatives, potentially responsible parties, and other individuals interested in site activities. Interviewees are asked about the concerns and information needs of the community.

Community Relations (CR). The effort to establish two-way communication with the public to create understanding of cleanup programs and related actions, to assure public input into decision-making processes related to affected communities, and to make certain that the installation is aware of and responsive to public concerns. Specific community relations activities are required in relation to Superfund remedial actions.

Community Relations Coordinator. The Air Force representative at McClellan who is responsible for answering questions from the public and responding to community concerns. This person also conducts public meetings and coordinates publication of fact sheets and newsletters.

Community Relations/Public Participation Plan (commonly referred to as the CRP). A document that outlines specific community relations activities that occur during the remedial response at a site; it is a means for the Air Force to keep the public informed of work at the site, and a way for citizens to review and comment on decisions that may affect the final actions at the site.

Community-Right-to-Know. Requirement of SARA, Title III, in which industries must make local communities aware of the types and quantities of chemicals used in their industrial processes. The Air Force is not required to comply, but Department of Defense policy is to comply with intent of act.

Community Water System. A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compaction. Reduction of the bulk or solid waste by rolling and tamping.

Compatibility. The ability of materials (usually waste fluid combinations or liners) to coexist without adverse environmental effects or health risks.

Compliance Monitoring Program. A grogram used to determine whether groundwater performance standards are exceeded.

Compliance Point. A term used to describe the location where the groundwater protection standard is measured.

Compound. A substance with a constant composition that can be broken down into chemical elements. For example, table salt (NaCl) is a compound that can be broken down into its chemical elements sodium (Na +) and chloride (Cd).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This detailed description of CERCLA is provided to give the reader a better understanding of CERCLA's history and functions.

CERCLA was passed in 1980 and was designed to respond to the past disposal of hazardous substances, which in many cases created inactive, hazardous waste sites. The law was passed in response to Love Canal and its harmful effect on human health and the environment. Existing law at that time did not address abandoned hazardous substance disposal sites. CERCLA was extensively amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA), which added many provisions and clarified unclear areas in the original law. One of the primary provisions added by SARA was to make federal facilities (particularly Department of Defense [DOD] and Department of Energy [DOE] facilities) subject to CERCLA. Therefore, military installations must comply with the provisions of CERCLA to the same extent as any private facility. CERCLA's major emphasis is on the cleanup of inactive hazardous waste sites and the allocation of cleanup costs among the parties who generated and handled hazardous substances at those sites. Hazardous substances are all those chemicals generally thought to be hazardous with the exception of petroleum. The law applies to hazardous waste sites created before its passage in 1980 and can hold any or all parties who generated and handled waste (known as "potentially responsible parties" or PRPs) liable for the entire cost of cleanup. Since, in many cases, PRPs cannot be found or have insufficient financial resources for cleanup, Congress created the Hazardous Substance Superfund (hence the Superfund nickname for CERCLA), which provides funds to be used by the U.S. Environmental Protection Agency (U.S. EPA) for cleanup. The Air Force cleanups are funded either by the Air Force Environmental Restoration Account or by Base Realignment and Closure Account (if the installation is on the BRAC list), as opposed to the "Superfund" account. Also established by CERCLA is the National Priorities List (NPL) which requires U.S. EPA to determine a priority for the sites requiring cleanup with those that pose the greatest threat to public health or the environment to be cleaned up first. Another amendment to CERCLA, the Community Environmental Response Facilitation Act (CERFA) established procedures for closing federal facilities to more quickly identify uncontaminated property with the goal of accelerating the transfer of property that can be immediately made available for reuse.

Concentration. The amount of chemical present per amount of sample.

Cone of Depression. A cone-shaped depression that is formed in a water table when groundwater is rapidly removed through a well.

Confined Aquifer. An aquifer in which groundwater is confined under pressure that is significantly greater than atmospheric pressure.

Confirmation Study. An investigation that verifies the existence or absence of contamination at a hazardous waste site.

Consent Decree. A legal document, approved by a judge, that formalizes an agreement reached between U.S. EPA and potentially responsible parties (PRPs), through which PRPs will conduct all or part of a cleanup action at a Superfund site; cease or correct actions or processes that are polluting the environment; or otherwise comply with regulations where the PRP's failure to comply caused U.S. EPA to initiate regulatory enforcement actions. The consent decree describes the actions PRPs will take and may be subject to a public comment period.

Conservation. Avoiding waste of, and renewing when possible, human and natural resources. The protection, improvement, and use of natural resources according to principles that will assure their highest economic or social benefits.

Constituent. A chemical component of a waste or chemical compound which qualifies a waste as hazardous under state or federal regulation.

Contact Person. Designation of one staff member as a contact person who assumes responsibility for addressing citizens' concerns, answering their questions individually, and responding to inquiries from the media.

Contaminant. Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water, or soil.

Contaminant of Concern (COC). Substances selected for remediation based on: (1) predicted impacts to surface water or groundwater resources; (2) concentration measurements above maximum contaminant levels; and (3) health risk posed by the contaminant.

Contaminant Plume. The lateral and vertical extent of a contaminant in air, water, or soil.

Contaminant Standards. Limits on concentrations of contaminants in water, soil, sediments, or air established by federal, state, or local law or regulation.

Contamination. The degradation of natural water or soil quality as a result of human activities, to the extent that its usefulness is impaired. The degree of permissible contamination depends upon the intended end use, or uses, of the water.

Contingency Plan. A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or other accident that releases toxic chemicals, hazardous wastes, or radioactive materials which threaten human health or the environment (see National Oil and Hazardous Substances Contingency Plan).

Contract Laboratory Program (CLP). Analytical program developed for Superfund waste site samples to fill the need for legally defensible analytical results supported by a high level of quality assurance and documentation.

Coolant. A liquid or gas used to reduce the heat generated by power production in nuclear reactors, electric generators, various industrial and mechanical processes, and automobile engines.

Core. A continuous columnar sample of the lithologic units extracted from a borehole. Such a sample preserves stratigraphic contacts and structural features.

Corrective Action Management Unit (CAMU). Materials generated during the cleanup of an industrial property are consolidated, treated, and contained in Corrective Action Management Unit, or CAMU. CAMUs can be used to implement reliable, effective, protective, and cost-effective cleanups. Cleanup materials are stored, treated, and placed in a CAMU containment unit cell. The bottom of the cell is lined with several layers of soil, clay, drainage material, and high density plastic. The liner is sloped such that any liquids that could collect will flow into a sump and be promptly removed. The sump is located above the groundwater table. All surface water will be diverted away from the CAMU, and any rain or snow falling directly onto the CAMU will be directed to a water management pond.

Corrective Action Measure. The removal or treatment in place of any hazardous constituents that exceed concentration limits in groundwater below a land disposal facility.

Corrective Measure Study (CMS). The CMS is the third phase of the RCRA corrective action program for a facility consisting of the identification of corrective action requirements and the evaluation and selection of appropriate remedies for these problems identified in the RCRA facility investigation. The CMS roughly equates to the feasibility study and proposed plan prepared for sites being investigated under CERCLA.

Corrosive. A material that has the ability to cause visible destruction of living tissue and has a destructive effect on other substances. An acid or a base.

Cost-Effective Alternative. An alternative, control, or corrective method identified after analysis as being the best available in terms of reliability, permanence, and economic considerations. Although costs are one important consideration, when regulatory and compliance methods are being considered, such analysis does not require U.S. EPA to choose the least expensive alternative. For example, when selecting a method for cleaning up a site on the Superfund National Priorities List, the agency balances costs with the long-term effectiveness of the various methods proposed.

Cost Recovery. A legal process by which potentially responsible parties who contributed to contamination at a Superfund site can be required to reimburse the fund for money spent by the federal government during any cleanup actions.

Council on Environmental Quality (CEQ). Established by the National Environmental Policy Act (NEPA), the CEQ consists of three members appointed by the President. CEQ regulations [40 Code of Federal Regulations (CFR) Parts 1500-1508, as of July 1, 1986] describe the process for implementing NEPA, including preparation of environmental assessments and environmental impact statements, and the timing and extent of public participation.

Cover. Vegetation or other material providing protection from erosion, such as ground cover.

Criteria. Descriptive factors taken into account by U.S. EPA in setting standards for various pollutants. These factors are used to determine limits on allowable concentration levels and to limit the number of violations per year. When issued by U.S. EPA, the criteria provide guidance to the states on how to establish their standards.

Criteria Pollutants. This 1970 amendment to the Clean Air Act required U.S. EPA to set National Ambient Air Quality Standards for certain pollutants known to be hazardous to human health. U.S. EPA has identified and set standards to protect human health and welfare for six pollutants: ozone, carbon monoxide, total suspended particulates, sulfur dioxide, lead, and nitrogen oxide. The term, "criteria pollutants" derives from the requirement that U.S. EPA must describe the characteristics and potential health and welfare effects of these pollutants. It is on the basis of these criteria that standards are set or revised.

D

Data Gap. Area where contamination data is not available. Further investigation is necessary to complete the conceptual model of an area.

Data Quality Objective (DQO). Statement that specifies the data needed to support decisions regarding remedial response activity.

DDT. The first chlorinated hydrocarbon insecticide (chemical name is dichlorodiphenyl-trichloroethane). It has a half-life of 15 years and can collect in fatty tissues of certain animals. U.S. EPA banned registration and interstate sale of DDT for virtually all but emergency uses in the United States in 1972 because of its persistence in the environment and accumulation in the food chain.

Decomposition. The breakdown of matter by bacteria and fungi. It changes the chemical makeup and physical appearance of materials.

Decontamination. The process of making any person, object, or area safe by absorbing, destroying, neutralizing, or making harmless by removing biological or chemical agents.

Deep-Well Injection. The disposal of hazardous wastes by pumping them into deep wells so the wastes can percolate through porous or permeable subsurface rock, and then be contained within surrounding layers of impermeable rock or clay. Deep-well injection is used extensively for the disposal of oil field brines. Chemical, pharmaceutical, steel, metal, paper mills, and coke plants can utilize this disposal method provided that the suitability of the geological formation can be proven.

Defense Environmental Restoration Account (DERA). The DERA is the Defense Appropriations Act funding mechanism for the Defense Environmental Restoration Program (DERP) Installation Restoration Program (IRP) (except the BRAC IRP).

Defense Environmental Restoration Program (DERP). The DERP is the program established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at Department of Defense (DoD) installations. The program currently includes the Installation Restoration Program (IRP), under which DoD installation investigations and site cleanups are conducted; and other hazardous waste operations, through which research, development, and demonstration programs aimed at improving remediation technology and reducing DoD waste generation rates are conducted. The Office of the Secretary of Defense manages DERP centrally. SARA provides continuing authority for the Secretary of Defense to carry out this program in consultation with the U.S. EPA and in compliance with CERCLA and SARA guidelines.

Defense Environmental Status Report (DESR). Report to Congress issued by Air Force Headquarters. It lists all environmental compliance problems, by base that occurred in the last reporting period.

Defense Reutilization and Marketing Office (DRMO). Local office of Defense Reutilization and Marketing Service (DRMS) of Defense Logistics Agency (DLA). DRMO handles most disposal/recycling of hazardous waste.
Degradation. The process by which a chemical is reduced to a less complex form.

Delist. Use of the petition process to have a facility removed from the National Priorities List once cleanup activities at the site have been completed.

Department of Transportation (DOT). Federal or state agency that regulates type of container making, labeling and placarding for transportation of hazardous material and hazardous waste. Guidelines are found in 49 Code of Federal Regulations (CRF) 171,172.

Description of Proposed Action and Alternatives (DOPAA). First step in Environmental Impact Analysis Process (EIAP) process.

Designated Uses. Those water uses identified in state water quality standards that must be achieved and maintained as required under the Clean Water Act. Uses can include cold-water fisheries, public water supply, and agriculture.

Desorption. The opposite of adsorption. When contaminants previously adsorbed to a surface diffuse or are otherwise detached from that surface.

Detailed Alternatives. Potential, comprehensive solutions to site problems composed of one or more control measures, which are developed and evaluated in detail in a remedial action plan.

Detectable. The concentration of a chemical that is equal to or greater than the detection limit (opposite = non-detectable).

Detection Limit. The lowest amount of an analyte that can be reported with appropriate precision and accuracy. Where no chemical has been found, the value is often reported as "less than" the detection limit value (e.g., less than 0.1 parts per million).

Dialysis. The process of separating a mixture of substances in solution by using a membrane as a filtering agent.

Diffusion. (1) The mixing of substances, usually gases and liquids, due to molecular motion; (2) spreading out of substances, usually a gas, to fill a space.

Digest. The solution remaining after a sample has been digested.

Digestion. The process of isolating metals from a solid sample by heating with nitric acid.

Dilution Ratio. The relationship between the volume of water in a stream and the volume of incoming water. The ratio affects the ability of a stream to assimilate waste.

Dioxin. Any of a family of compounds known chemically as dibenzo-p-dioxins. Concern about them arises from their toxicity and presence in commercial products. Tests on laboratory animals indicate that dioxins are among the most toxic chemical groups known.

Direct Discharge. A municipal or industrial facility that introduces pollution through a defined conveyance or system; a point source.

Discharge. Release of groundwater in springs or wells through evapotranspiration or as outflow.

Disclosure Factors. Both Facility and Natural Resources Disclosure factors which include substances and petroleum substances that do not pose a threat to the well being of the human community or environment if managed and maintained properly; and structures or artifacts of historical or cultural interest, threatened or endangered species or their habitats, unusual geologic or floodplain conditions, and/or valuable resources which may affect the transfer or lease of property.

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, land farming, deep well injections, ocean dumping, or incineration.

Disposal Facility. A facility, as defined in 40 Code of Federal Regulation 260.10, where hazardous waste is intentionally placed on land or water, and at which the waste will remain after closure of the facility.

Dissipate. As associated with groundwater contamination: to attenuate to or almost to the point of disappearing.

Distillation. A hazardous waste physical treatment process that involves the evaporation of a liquid or slurry and separation of the components of the resulting vapor.

Dosimeter. An instrument that measures the total dose of nuclear radiation in a given period.

Downgradient. The direction toward which groundwater would flow; analogous to downstream.

Drainage Well. A well installed to drain water at or near ground surface.

Drawdown. A decrease of the water level at a measuring point in an aquifer caused by the withdrawal of water.

Dredging. Removal of mud from the bottom of water bodies using a scooping machine. Dredging can disturb the ecosystem and cause silting that can kill aquatic life. Dredging of contaminated mud can expose aquatic life to heavy metals and other toxics. Dredging activities may be subject to regulation under Section 404 of the Clean Water Act.

Drinking Water Supply. Any raw or finished water source that is or may be used as a public water system (as defined in the Safe Drinking Water Act) or as drinking water by one or more individuals.

Dry Well (Dry Hole). A well that does not extend into the water table or saturated zone.

Dual-Phase Extraction. Extraction wells that pump both soil vapor and groundwater for treatment.

Dump. A site used to dispose of solid wastes without environmental controls.

E

Ecological Impact. The effect that a man-made or natural activity has on living organisms and their nonliving (abiotic) environment.

Ecology. The relationship of living things to one another and their environment, or the study of such relationships.

Economic Development Conveyance (EDC). One process used by a community to obtain land at a closing military installation.

Ecosystem. The interacting system of a biological community and its nonliving environment.

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

Electrolysis. A hazardous waste chemical treatment method by which chemical changes are accomplished at the surface of electrodes that are carrying an electric current and have been immersed in a chemical solution.

Electrostatic Precipitator. An air pollution control device that imparts an electric charge to particles in a gas stream causing them to collect on an electrode.

Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). Title III of Superfund Amendments and Reauthorization Act. EPCRA requires certain facilities to coordinate emergency planning with local and regional authorities and prepare hazardous material inventory and release data (Tier I and II and Toxic Release Inventory Reports). Executive Order 12856, signed August 3, 1993, requires that federal facilities comply with EPCRA.

Eminent Domain. Government taking or forced acquisition of private land for public use, with compensation paid to the landowner.

Emission. Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities; from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts.

Emissions Standard. The maximum amount of air polluting discharge legally allowed from a single source, mobile or stationary.

Encapsulation. A hazardous waste physical treatment process, which encases or encloses the waste with either adhesive coating materials or specially lined containers (such as steel-lined drums or concrete blocks) in order to isolate it and keep it from contaminating the environment.

Endangered Species. Animals, birds, fish, plants, or other living organisms threatened with extinction by human or natural changes in their environment. Requirements for declaring a species endangered are contained in the federal Endangered Species Act.

Energy Recovery. Obtaining energy from the controlled incineration of solid waste.

Engineering Evaluation/Cost Analysis (EE/CA). An analysis of removal action alternatives for a site, similar to a remedial program feasibility study. The EE/CA report must be made available for a 30-day public comment period prior to the signing of the action memorandum.

Environment. The sum of all external conditions affecting the life, development, and survival of an organism.

Environmental Assessment (EA). An EA is a document prepared to evaluate the environ-mental impacts of a federal action in compliance with the National Environmental Policy Act (NEPA) when an environmental impact statement (EIS) may not be necessary. If the EA indicates that there may be significant adverse impacts to the environment from the proposed action, an EIS is required. If no significant impact is identified in the EA, a finding of no significant impact (FONSI) is documented, and no further evaluation under NEPA is required.
Environmental Audit. An independent assessment of the current status of a party's compliance with applicable environmental requirements.

Environmental Baseline Survey (EBS). An EBS documents the physical condition of real property resulting from the use, storage, and disposal of hazardous substances and petroleum products and their derivatives over the installation's history. It establishes a baseline for use by the Department of the Air Force in making decisions concerning real property transactions. The preparation of an EBS is required by Department of Defense policy before any property can be leased, transferred, sold, or be used by the military in meeting its obligations under CERCLA, 42 United States Code Section 9620 (h) [also referred to as CERCLA Section 120(h)], as amended by Community Environmental Response Facilitation Act (CERFA) (Public Law 102-426).

Environmental Compliance Assessment and Management Program (ECAMP). Program designed to examine whether a base is meeting environmental compliance requirements, and to aid in managing potential compliance shortfalls. Program guidance issued by Air Force headquarters requires annual internal and external assessment.

Environmental Condition of Real Property. Determined by assessing the storage, release, and disposal of hazardous substances and petroleum substances and their derivatives over the installation's history to establish a baseline for use by the Air Force in making decisions concerning real property transactions.

Environmental Hazard. A substance that has a potential to cause an environmental problem.

Environmental Impact Analysis Process (EIAP). Process designed to meet the requirements of National Environmental Policy Act (NEPA). Ensures that environmental factors are considered in the decision-making process.
Environmental Impact Statement (EIS). A federally required report on the impacts of a project on the environment.

Environmental Management (EM). The McClellan Directorate responsible for overseeing the Installation Restoration Program (IRP).

Erosion. The wearing away of land surface by wind or water. Erosion occurs naturally from weather and runoff but can be intensified by land-clearing practices related to farming, residential or industrial development, road building, or timber cutting.

Expedited Response Action. A cleanup or removal action given priority during the restoration process because of immediate threat to human health or the environment.
Explanation of Significant Difference (ESD). An ESD is a document which identifies significant changes that are being made to a component of the remedial action remedy in a record of decision (ROD) or decision document. If fundamental changes are made to the overall remedy, they are documented in an ROD or decision document amendment and not an ESD.

Exposure. Contact of an organism with a chemical or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g., skin, lungs, gut) and available for absorption.

Extract. The liquid solution remaining after a sample has been contacted with an extraction solution. The extract, containing the chemical of interest, is then processed and analyzed.

Extraction. The process of isolating chemicals of interest from a sample matrix (e.g., water, soil).

Extraction System. The equipment, including the wells, to pump groundwater or soil gas out of the ground and route it to a treatment unit or plant.

Extraction Well (EW). A well used for the extraction (or pumping) of groundwater or soil gas, usually as part of a remedial or removal action.

F

Facility. A building, structure, installation, equipment, pipe or pipeline, well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock or aircraft, or any site or area where a hazardous substance has been deposited, stored, disposed of or placed, or otherwise come to be located.

Facility Disclosure Factors. Hazardous substances, petroleum substances, or structures incorporating or associated with the use of hazardous substances or petroleum substances which do not pose a threat to the well being of the human community and environment if managed and maintained properly. They include asbestos, lead-based paint, radionuclides, radon, and ordnance.

Fact Sheet. A brief report summarizing current or proposed activities of the cleanup program. The fact sheet presents technical information in a format understandable to a layperson.

False Negative Result. A result that was negative and should not have been. Trip blanks and/or method blanks are taken during sampling events to check for false negatives.

False Positive Result. A result that was positive and should not have been. Trip blanks and/or method blanks are taken during sampling events to check for false positives.
Feasibility Study (FS). (1) A description and analysis of the potential cleanup alternatives for a site. The feasibility study recommends selection of a preferred alternative. It usually starts as soon as the remedial investigation is underway; together, they are commonly referred to as the "RI/FS." The term can apply to a variety of proposed corrective or regulatory actions. (2) In research, a small-scale investigation of a problem to ascertain whether or not a proposed research approach is likely to provide useful data.

Federal Facilities Compliance Act (FFCA). This act amends the Solid Waste Disposal Act and states that all federal agencies are subject to
all substantive and procedural requirements of federal, state, and local solid and hazardous waste laws in the same manner as any private party.
Federal Facility Site Remediation Agreement (FFSRA). This is a binding agreement between the party responsible for cleanup of a site that is not on the National Priorities List (NPL) and the lead state environmental agency that formalizes the CERCLA procedures and schedules to be followed for the site. The FFSRA equates to a federal facilities agreement for an NPL site.
Federal Property Management Regulations (FMPRs). These regulations determine how federally owned real property will be managed.

Federal Register (FR). Daily federal government publication that announces all proposed and final regulations.

Fermentation. A change brought about by a chemical reaction that turns complex organic compounds into relatively simple substances, i.e., conversion of sugar to carbon dioxide, and creation of alcohol from yeast.

Fertilizer. Materials such as nitrogen and phosphorus that provide nutrients for plants. Commercially sold fertilizers may contain other chemicals or may be in the form of processed sewage sludge.

Filtration. A treatment process, under the control of qualified operators, for removing solid (particulate) matter from water by passing the water through porous media such as sand or an artificial filter.

Final Remediation Goal (FRG). The cleanup level that must be met for remediation to be completed.

Finding of No Significant Impact (FONSI). An FONSI is a document that briefly states why an action will not significantly affect the environment, thus avoiding the requirement for an environmental impact statement (EIS). This is the finding document that accompanies an environmental assessment (EA).

Finding of Suitability to Lease (FOSL). The decision document based on an environmental baseline survey (EBS). It makes the determination that leasing facilities would not have an adverse effect on human health or the environment. Also requires accompanying EBS and National Environmental Policy Act (NEPA) documentation record of environmental consideration (REC), environmental assessment (EA), or environmental impact statement (EIS).

Finding of Suitability to Transfer (FOST). The decision document based on an environ-mental baseline survey (EBS) that makes the determination that transferring facilities would not have an adverse effect on human health or the environment. Also requires accompanying EBS and National Environmental Policy Act (NEPA) documentation record of environmental consideration (REC), environmental assessment (EA), or environmental impact statement (EIS).

Fiscal Year (FY). The federal government's budgetary year starting October 1 of every year.

Flame Ionization Detection (HD). Flame ionization detectors can measure total concentrations of hydrocarbon vapors. The instruments are generally calibrated using methane in air, and the instrument response for each specific compound is proportional to its response factor relative to methane.

Flameless Oxidation. These systems use a ceramic matrix and supplemental natural gas to oxidize the VOCs. A quench chamber and scrubber system use NaOH to neutralize the acids, producing sodium chloride (NaCl). Scrubber sump blowdowns purge the salt from the system.

Flocculation. A hazardous waste physical treatment method by which suspended particles are assembled into larger, more settable particles; this technique enhances the sedimentation process.

Flood Plain. The usually dry lowland that borders a river, but is subject to flooding when the river overflows its banks.

Flotation. A hazardous waste physical treatment process by which fine and light particles are separated from liquid and rise to the surface; the particles are collected by skimming mechanisms.

Flow Path. The direction in which groundwater is moving.

Flowmeter. A gauge that shows the volume of liquid moving through a process.

Flume. A channel that diverts water.

Fluorides. Gaseous, solids, or dissolved compounds containing fluorine.

Fluorocarbon (FCs). Any of a number of organic compounds analogous to hydrocarbons in which one or more hydrogen atoms are replaced by fluorine. Once used in the United States as a propellant in aerosols, they are now primarily used in coolants and some industrial processes. FCs containing chlorine are called chlorofluorocarbons (CFCs). They are believed to be destroying the ozone layer in the stratosphere, thereby allowing more harmful solar radiation to reach the Earth's surface.

Food Chain. The dependence of one type of life on another, each in turn eating or absorbing the next organism in the chain.

Fracture. A crack, joint, or fault in a rock due to mechanical failure by stress.

Free Liquids. Liquids that readily separate from the solid portion of a waste under ambient temperature and pressure.

Fresh Water. Water that generally contains less than 1,000 parts per million of dissolved solids.

Friable. Easily crumbled or reduced into powder by hand pressure.

G

Gamma Rays. Energetic radiation emitted by a radioactive substance. Requires lead shielding to stop penetration.

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

Generator. A facility that produces hazardous waste as a by-product of its industrial processes. There are three categories of generators: large quantity, small quantity, and conditionally exempt.

Geographical Information System (GIS). Computer software applications used to create site-specific maps and computer models of specialized environmental conditions. GIS software combines database, computer graphics, and topographical information.

Gradient. The rate of descent or ascent of a slope, expressed as the ratio of the horizontal to the vertical distance, for example, 40 feet per mile.

Granular Activated Carbon (GAC) Adsorption. The contaminated vapor stream is directed through two GAC vessels (primary and secondary). Contaminants are adsorbed into the surface of the carbon. The carbon must be exchanged with fresh carbon periodically when breakthrough of contaminants occurs at the effluent of the primary vessel.

Granular Activated Carbon Treatment (GACT). A filtering system often used in small water systems and individual homes to remove organics. Granular activated carbon can be highly effective in removing elevated levels of radon from water.

Greenhouse Effect. The warming of the Earth's atmosphere caused by a build-up of carbon dioxide or other trace gases; it is believed by many scientists that this build-up of carbon dioxide or other trace gases allows light from the sun's rays to heat the Earth but prevents a counterbalancing loss of heat.

Ground Cover. Plants grown to keep soil from eroding.

Groundwater. The water beneath the ground. Underground water that fills pores between particles of soil, sand, and gravel or openings in rocks to the point of saturation.

Groundwater Flow Velocity. The rate at which groundwater moves, measured in terms of distance per year or distance per day.

Groundwater Flow Model. A mathematical description of the movement of water in a groundwater system; models simplify the real system while preserving the important features governing flow; computers are used to speed solution of the equations in the model; models are used as tools for understanding and solving complex field problems.

Groundwater Mounding. An area of higher hydraulic head. Some mounds are "high spots" between pumped areas, some may be due to broken water lines, some may be groundwater divides, and some are unexplained.

Groundwater Plume. A body of contaminated groundwater, originating from a specific source and influenced by such factors as the local groundwater flow pattern, density and concentration of contaminant, and character of the aquifer.
Groundwater Quality. The specific chemical, physical, and biological properties of ground water in a specific area. State and local standards determine its suitability as a drinking water supply.

H

Habitat. The place where a population (e.g., human, animal, plant, microorganism) lives and its surroundings, both living and nonliving.
Half-Life. (1) The time required for a pollutant to lose half of its mass in the environment. For example, the half-life of radium in the environment is 1,580 years. (2) The time required for half of the atoms of a radioactive element to undergo decay. (3) The time required for the elimination of one-half a total dose from the body.

Hard Water. Alkaline water containing dissolved salts that interfere with some industrial processes and prevent soap from lathering.

Hazard Ranking System (HRS). This is a system established by the U.S. EPA for evaluating contaminated sites based on the potential hazard posed to public health and the environment. The system uses preliminary assessment/site investigation (PA/SI) data to generate a score ranging from 0 to 100 for each installation or individual site evaluated. Installations with a score above 28.5 may be included on the National Priorities List.

Hazardous Communication Program (HAZCOM). Air Force Occupational Safety and Health (AFOSH) program to ensure that all workers understand hazards inherent in their workplace.

Hazardous Material. A substance or mixture of substances that has the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or posing a substantial present or potential risk to human health or the environment. The Department of Transportation, Occupational Safety and Health Administration (OSHA), and the Superfund Amendments and Reauthorization Act (SARA) regulate use of these materials.

Hazardous Waste. A waste that may pose a risk of endangering human health or safety or of degrading the environment. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, toxicity), or appears on special U.S. EPA lists.

Hazards Analysis. The procedures involved in: (1) identifying potential sources of hazardous materials released from fixed facilities or during transportation accidents; (2) determining the vulnerability of a geographical area to a release of hazardous materials; and (3) comparing hazards to determine which present greater or lesser risks to a community.

Head Space. The air space in a sealed sample container at the top of a water or soil sample.

Health Risk Assessment (HRA). A quantitative analysis of the potential human health risks posed by exposure to specified concentrations of chemicals.

Health and Safety Plan (HSP). The document that prescribes the procedures to protect workers' health and safety while working with potentially hazardous chemicals or wastes.

Heavy Metals. Metals that have often been used in the manufacture of aircraft parts, pigments, inks, and paints. Some metals are toxic, especially cadmium, mercury, lead, and chromium, in the elemental form as well as in a compound. Chromium and nickel are known carcinogens.

Henry's Law. The concentration of a solute gas in a solution is directly proportional to the partial pressure of that gas above the solution.
Herbicide. A chemical used to destroy unwanted vegetation, especially various types of weeds, grasses, and woody plants.

Historic American Engineering Record (HAER). A permanent archival record of an historic property that includes an inventory of the property, photographs of the property; as-built drawings, and historical analysis and documentation. This process is guided by the "Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation" and is often required where a historic property may be destroyed or significantly altered.

Historic Preservation Plan (HPP). A document used to develop guidelines and standards for the protection of historic properties at a site and to integrate historic preservation requirements with other planning efforts.

HNu. Photo ionization detector (trade name); a means of measuring vapors in the soil.

Holding Pond. A pond or reservoir, usually made of earth, built to collect or store polluted surface waters.

Host. (1) In genetics, the organism, typically a bacterium, into which a gene from another organism is transplanted. (2) In medicine, an animal infected by or parasitized by another organism.

Hot Spot. Typically, this represents an area of groundwater contamination 100 times greater than the maximum contaminant level and may be an indication of contaminant origin.

Humus. Vegetative matter in soil that is most resistant to decomposition.
Hybrid. A cell or organism resulting from a cross between two genetically dissimilar plant or animal cells organisms.

Hydrocarbons. Any of the numerous organic compounds that contain hydrogen and carbon; trichloroethene is a hydrocarbon. Some hydrocarbons are suspected of causing cancer; some are known to cause cancer.

Hydrogeologic Study. A study that examines the way water behaves in soil and rock formations beneath the ground.
Hydrogeology. The science dealing with the occurrence of surface and groundwater, it's use, and its functions in modifying the earth, primarily by erosion and deposition.

Hydrology. The science dealing with the properties, distribution, and circulation of water.
HydroPunch®. System and method of collecting groundwater samples during drilling. A metal punch is hammered to the desired depth using a drill rig then pulled back to expose a screen. A bailer is then lowered into the screened area to collect the groundwater sample.

I

Ignitable. Capable of burning or causing a fire.

Impermeability. As applied to soil or subsoil. the degree to which fluids, particularly water, cannot penetrate in measurable quantities.
In Situ. Remediation in place.

In Situ Vitrification. A process of remediating a hazardous waste site by \ installing electrodes around the perimeter of the site and inducing a plasma arc in the material. The induced temperatures (1,000 to 2,000 degrees Fahrenheit) break down many of the hazardous compounds. The remaining material is locked in a "glass" matrix. Short of volcanic eruption, this should prevent the hazardous material from entering the environment.

Interim Remedial Measure. A step taken to protect the public from exposure while continuing investigations required under Superfund laws (CERCLA/SARA); may be called a removal action.

In Vitro. Pertaining to a biological reaction-taking place in an artificial environment.

Incineration. (1) Burning of materials. (2) A treatment technology involving destruction of hazardous waste by controlled burning at high temperatures, e.g., burning sludge to remove the water and reduce the remaining residues to a safe, nonburnable ash that can be disposed of safely on land, in certain waters, or in underground locations.

Incinerator. A furnace for burning wastes under controlled conditions

Indicator. In biology, an organism, species, or community whose characteristics show the presence of specific environmental conditions.

Infiltration. (1) The penetration of water through the ground surface into subsurface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or walls. (2) A land application technique where large volumes of wastewater are applied to land, allowed penetrating the surface, and percolating through the underlying soil.

Inflow. Entry of extraneous rainwater into a sewer system from sources other than infiltration, such as basement drains, manholes, storm drains, and street washing.

Information Repository (IR). A project file or repository maintained in the community that contains all documents and detailed information regarding environmental cleanup activities ongoing at the nearby site. The 1R should contain executive summaries of recent documents used to develop a record of decision for remedial action. The IR is maintained to provide easy access for community members to gain information about environmental activities at the nearby site. It also has a catalog of all documents available in the AR should more research be required.

Injection Well. A well into which fluids are injected for purposes such as recycling treated groundwater, improving the recovery of crude oil by injecting steam, or solution mining.

Injection Zone. A geological formation, group of formations, or part of a formation receiving fluids through a well.

Inorganic Compounds. Compounds from matter other than plant or animal that do not contain carbon as the principal element (except carbonates, cyanides, and cyananites). Water, sulfuric acid, table salt, and ammonia are examples of inorganic compounds. Also known as inorganic chemicals or inorganics. The toxicity of inorganic compounds varies based on the chemicals and the structures of the compounds.

Installation. A military base.

Installation Restoration Program (IRP). The specially funded program established in 1978 under which the Department of Defense has been identifying and evaluating its hazardous waste sites and controlling the migration of hazardous contaminants from those sites.

Intake. A measure of exposure expressed as the mass of substance in contact with the exchange boundary per unity body weight per unit time (e.g., mg/kg-day). Also termed the normalized exposure rate.

Interagency Agreement (IAG). An agreement between the Air Force, U.S. Environmental Protection Agency (U.S. EPA), and California Environmental Protection Agency (Cal/EPA) to share responsibilities and oversight for Installation Restoration Program (IRP) activities at McClellan. These agencies ensure that remediation activities implemented at McClellan protect public health and the environment and comply with all applicable state and federal regulations. Also known as the Federal Facilities Agreement (WA).

Interstitial Monitoring. The continuous surveillance of the narrow space between the two walls of an underground storage tank.

Ion. An atom or group of atoms that has a net electric charge by gaining or losing one or more electrons.

Ion Exchange Treatment. A common water softening method often found on a large scale at water purification plants that removes some organics and radium by adding calcium oxide or calcium hydroxide to increase the pH to a level where the metals will precipitate out.

Ionization Chamber. A device that measures the intensity of ionizing radiation.

Ionizing Radiation. The energy emitted by a radioactive source.

Irrigation. Technique for applying water or wastewater to land areas to supply the water and nutrient needs of plants.

Irritant. A noncorrosive chemical that causes annoyance, irritation, inflammation, soreness, or irritability on living tissue at the site of contact.

Isopleth. Lines drawn on a map to connect points of equivalent value. The lines are used to show the extent of groundwater or soil contamination concentrations. Dashed lines indicate that the extent of contamination is estimated.

Isotope. A variation of an element that has the same atomic number but a different atomic weight. Various isotopes of the same element may have different radioactive behaviors.

L

Lagoon. A shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater; also used for the storage of wastewaters or spent nuclear fuel rods.

Landfills. (1) Sanitary landfills are land disposal sites for non-hazardous solid wastes at which the waste is spread in layers, compacted to the smallest practical volume, and cover material applied at the end of each operating day. (2) Secure chemical landfills are disposal sites for hazardous waste. They are selected and designed to minimize the chance of release of hazardous wastes into the environment (especially to the groundwater).

Leachate. The liquid that trickles through or drains from waste carrying soluble components from the waste. Leachate in the soil can travel downward into groundwater or be trapped in soil pores.

Leachate Collection System. A system that gathers leachate and pumps it to the surface for treatment.

Lead (Pb). A heavy metal that is toxic and accumulates in the food chain. Lead is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations.

Lead-Based Paint (LBP). Paint that contains 0.06% lead content by weight in a dry film as established by the Consumer Products Safety Commission.

Lead Agency. The agency having primary responsibility and authority for overview of a site. The U.S. Environmental Protection Agency is the lead agency at McClellan.

Level of Cleanup. A controversial issue at CERCLA sites is the degree of cleanup that must be achieved before the site is considered to be clean. Must the sites be cleaned up to pristine or pre-disposal conditions and, if not, what level meets the requirements of CERCLA and the U.S. EPA? Section 121 of CERCLA provides some guidelines and shows a preference for on-site treatment so that the hazardous substances are permanently destroyed. The cleanup level is established in the record of decision. Applicable or relevant and appropriate requirements (ARARs) indicate what a remedy must achieve. ARARs are any standard, requirement, criterion, or limitation required under any federal environ-mental law and the same under state laws if those are more stringent than the federal laws. While the cost of the remedy selected is a factor, it tends to be a minor one.

Level of Concern (LOC). The concentration in air of an extremely hazardous substance above which there may be serious immediate health effects to anyone exposed to it for short periods of time.

Limit of Detection (LOD). Range of analytical capability.

Liquid-Phase Carbon Absorption. A treatment technology using activated carbon filters to remove contaminants from a liquid waste stream.

Listed Waste. Wastes listed as hazardous under RCRA but which have not been subjected to the Toxic Characteristics Leaching Procedure because the dangers they present are considered self-evident.

Local Redevelopment (or Reuse) Authority (LRA). The LRA is made up of the Sacramento County Board of Supervisors and is recognized federally as the governing board for reuse issues at McClellan. It is tasked with providing leadership and building a consensus for base reuse. The primary responsibility of the LRA Planning Team is to produce a Reuse Plan for McClellan.

Low Level (Radioactive) Waste. Radioactive wastes that consist of radionuclides at concentrations of less than 100 nanocurries/gram.

M

Mann-Kendall Test. A statistical trend analysis performed to identify increasing or decreasing contaminant concentration trends, or the absence of trends, that may be occurring in groundwater in each well for target analytes.

Marsh. An area of soft, wet, low-lying land characterized by grassy vegetation, often forming a transition zone between water and land.

Material Data Safety Sheet (MSDS). The cornerstone of the Hazard Communication Standard. These lists provide information about the chemical substances within a product, safe handling procedures, first aid measures, and procedures to be taken when the product is accidentally spilled or released.

Matrix Spike. A solution of known concentrations of target analytes spiked (injected) into a field sample before sample preparation and analysis. This is performed by the laboratory to determine if matrix interferences that influence the recovery or measurement of method analytes are present.

Maximum Contaminant Levels (MCLs). Enforceable federal drinking water standards set by the Federal Safe Drinking Water Act. MCLs apply at the point of use (e.g., at the tap), but are often used in developing groundwater cleanup levels. MCLs are chemical-specific. MCLs are based on health effects, treatment technologies, costs, and other feasibility factors.

Maximum Contaminant Level Goals (MCLGs). Non-enforceable health goals for the maximum level of a contaminant in water delivered to users of public water supply systems.

McClellan Closure and Competition Directorate (SM-ALC/CL). The Sacramento Air Logistics Center (SM-ALC) Closure and Competition Directorate (CL) was created to implement the overall Base Realignment and Closure Commission (BRAC) decision. They are also charged with planning, developing, and executing the McClellan's policies and strategies and coordinating activities affecting base closure and reuse.

Media. Specific environments air, water, soil that are the subject of regulatory concern and activities.

Mercury (Hg). A heavy metal that can accumulate in the environment and is highly toxic if breathed or swallowed.

Metals. A group of chemical elements characterized by their luster and ability to conduct electricity and heat. Some metals are toxic, especially cadmium, mercury, lead, barium, chromium, and beryllium, in the elemental form as well as in a compound. Arsenic, chromium, and nickel are known carcinogens. Ingestion of some metals such as copper and iron in small amounts is necessary for proper health.

Methane. A colorless, nonpoisonous, flammable gas created by anaerobic decomposition of organic compounds.

Method 18. U.S. EPA test method that uses gas chromatographic techniques to measure the concentration of individual volatile organic compounds in a gas stream.

Method Detection Limit (MDL). The capability of an analytical method.

Method Detection Limit/Minimum Detection Limit. The minimum analyte concentration that can be measured and reported with a 99% confidence that the concentration is greater than zero.

Method Spike. A sample to which a known amount of the chemical of interest is added just prior to analysis of a sample set. It is used to measure the accuracy of a method. Analysis alongside the real samples will eliminate any false negative results arising from poor lab techniques.

Methyl Ethyl Ketone (MEK). Solvent degreaser, on toxic 17 list.

Microbes. A minute form of life. Microscopic organisms such as algae, animals, viruses, bacteria, fungus, and protozoa, some of which cause diseases.

Microorganism. Living organisms so small that individually they can usually be seen only through a microscope.

Migration. The movement of oil, gas, contaminants, water, or other liquids through the environment especially through pores in soil or fractures in rock.

Mitigation. Actions taken to improve site conditions by limiting, reducing, or controlling toxicity and contamination sources.

Mobile Source. A moving producer of air pollution; mainly forms of transportation such as cars, trucks, motorcycles, and airplanes.

Modeling. Use of a mathematical or physical representation to simulate or predict the effect of an action. Models are often used to predict the effect of changes on a system. For example, modeling is used to estimate the effects of increased traffic on air pollution.

Monitor. To systematically observe and keep track of changes. Usually to determine the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, animals, and other living things.

Monitoring Wells. Special wells drilled at specific locations on or off a hazardous waste site where groundwater can be sampled at selected depths and studied to determine the direction groundwater flows and the types and amounts of contaminants present.

Monitoring Zone. The division of the groundwater subsurface based primarily on geophysical logs between pilot borings. The Monitoring Zones serve to provide a basis for discussing the data by depth interval.

Multiple Use. Use of land for more than one purpose; i.e., grazing of livestock, wildlife production, recreation, watershed, and timber production.

N

National Oil and Hazardous Substances Pollution Contingency Plan (NOHSPCP). Also referred to as the National Contingency Plan. The federal regulation that guides determination of the sites to be cleaned up under the Superfund program. This plan also provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances in accordance with CERCLA and the Clean Water Act. These procedures include the completion of a preliminary assessment, remedial investigation/feasibility study, proposed plan, remedial design, and remedial action.

National Pollutant Discharge Elimination System (NPDES). A provision of the Clean Water Act that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by U.S. EPA, a state, or (where delegated) a tribal government on an Indian reservation. Federal regulation that provides for a timely, effective response by various federal agencies and other organizations to discharges and releases of hazardous substances to protect public health, welfare, and the environment. NPDES elements include industrial and sanitary wastewater discharge permitting programs and storm water permitting programs.

National Priorities List (NPL). A list of sites developed by U.S. EPA, designated as needing long-term remedial cleanup. The purpose of the list is to inform the public of the most hazardous waste sites in the nation. McClellan is listed on the NPL. Also called the Superfund List. The list is compiled by the U.S. EPA pursuant to CERCLA (42 U.S.C., Section 9605(a)(8)(B)) of properties with the highest priority for cleanup pursuant to the U.S. EPA Hazard Ranking System. Information gathered in the Preliminary Assessment/Site Investigation (PA/SI) is used to score the site in accordance with the NPL's hazardous ranking system. Criteria used in the ranking process are the toxicity of the materials, the location of potential receptors (human and environmental) for the materials, the exposure pathways, threats to the human food chain, and threats to the ambient air and groundwater. If a site is listed on the NPL, the complete CERCLA remedial process is mandated which translates into a prolonged and expensive undertaking. NPL listing, however, makes a site eligible for Superfund financing (only NPL sites are eligible). Regulatory oversight for CERCLA site restoration actions at NPL installations is provided by the U.S. EPA. Such installations are required to enter into a Federal Facilities Agreement (WA).

National Register of Historic Places (NRHP). A register of properties that are historically significant at a local, regional, or national level, possess integrity, and meet one or more of four specific criteria. A property may be included in the Register if it has been formally nominated and accepted by the keeper of the Register within the National Park Service.

National Response Center. The federal operations center that receives notifications of all releases of oil and hazardous substances into the environment. The Center, open 24 hours a day, is operated by the U.S. Coast Guard, which evaluates all reports and notifies the appropriate agency.
Natural Gas. A natural fuel containing primarily methane and ethane that occurs in certain geologic formations.

Natural Resources Disclosure Factors. Structures or artifacts of historical or cultural interest, threatened or endangered species or their habitats, unusual geologic or floodplain conditions, and/or valuable mineral resources which may affect the transfer or lease of military property.

Natural Selection. The process of survival of the fittest, by which organisms that adapt to their environment survive and those that do not disappear.

Naturally Occurring Background Levels. Ambient concentrations of minerals that are naturally present in the environment and have not been influenced by humans (e.g., aluminum, manganese).

Necrosis. Death of plant or animal cells through injury or disease. In plants, necrosis can discolor areas on the plant or kill it entirely.

Neutralization. Decreasing the acidity or alkalinity of a substance by adding to it alkaline or acidic materials, respectively. A neutral solution has a pH of 7.

New Source. Any stationary source that is built or modified after publication of final or proposed regulations prescribing a standard of performance that is intended to apply to that type of emission source.

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

Nitrate. A compound containing nitrogen that can exist in the atmosphere or as a dissolved gas in water and that can have harmful effects on humans and animals. Nitrates in water can cause severe illness in infants and cows.

Nitrification. The process whereby ammonia in wastewater is oxidized to any nitrite or nitrate by bacterial or chemical reactions.

Nitrite. (1) An intermediate in the process of nitrification. (2) Nitrous oxide salts used in food preservation.

Nitrogen Dioxide (NO2). A poisonous brown gas often found in smog and automobile exhaust fumes.

Nitrogen Oxide (NO). Product of combustion from transportation and stationary sources and a major contributor to the formation of ozone in the troposphere and acid deposition.

Nitrogenous Wastes. Animal or vegetable residues that contain significant amount of nitrogen.

No Further Action (NFA). NFA is the designation given to an Area Requiring Environmental Evaluation (AREE) or Installation Restoration Program (IRP) site when investigation (site investigation or remedial investigation/ feasibility study results) indicates the site does not require remedial action. NFA is synonymous with no further response action planned (NFRAP). No Further Response Action Planned (NFRAP). NFRAP is synonymous with no further action (NFA).

Noncommunity Water System. A public water system that is not a community water system, e.g., the water supply at a campsite or national park.

Nonconventional Pollutant. Any pollutant that is not statutorily listed or which is poorly understood by the scientific community.

Nondetects. Chemicals that are not detected in a particular sample above the lowest level the equipment can read. This limit usually will be the quantization limit for the chemical in that sample. (Note, however, that it is possible to detect and estimate concentrations of chemicals below the quantization limit but above the detection limit.)

Nonionizing Electromagnetic Radiation. (1) Radiation that does not change the structure of atoms but does heat tissue and may cause harmful biological effects. (2) Microwaves, radio waves, and low frequency electromagnetic fields from high voltage transmission lines.

Nonpoint Source. Pollution sources that are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet. The pollutants are generally carried off the land by storm water runoff. The commonly used categories for nonpoint sources are agriculture, forestry, urban, mining, construction, dams and channels, land disposal, and saltwater intrusion.

No-Observed-Effect Level. In dose-response experiments, the experimental exposure level representing the highest level tested at which no effects at all were demonstrated.

Notice of Availability (NOA). Military document prepared to indicate which facilities are available for leasing.

Not In My Back Yard (NIMBY) Syndrome. The concept that, while waste treatment plants, landfills, and incinerators need to be built, they should be built "somewhere else."

Notice of Non-Compliance (NON). Similar to notice of violation (NOV), but more detailed, documenting various violations, noting enforceability claims, and compliance schedules.
Notice of Violation (NOV). Notice given by a regulatory agency indicating a regulatory violation exists that must be corrected or a fine will be levied.

Nutrient. Any substance assimilated by living things that promotes growth and is a source of nourishment. The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements.

Off-Site Facility. A hazardous waste treatment, storage or disposal area that is located some distance from the generating site.

Oil Water Separator (OWS). A sump, pit, or tank used to slow the flow of an oil/water mix in order to let the oil and water separate naturally. The oil is usually pumped or piped from the top of the separator, and disposed of separately from the water.
On-Site Facility. A hazardous waste treatment, storage, or disposal area that is located on the generating site.

Open Burning. (1) Uncontrolled fires in an open dump. (2) A method of destroying munitions by placing them on fire at an uncovered site.

Open Dump. An uncovered site used for disposal of waste without environmental controls.

Open House. An informal meeting where people can talk to agency officials one-on-one.

Operable Unit (OU). A term used to describe a certain portion of a CERCLA site. An operable unit may be established based on a particular type of contamination, contaminated media (such as soils or water), source of contamination, and/or geographical location.

Operation and Maintenance (O&M). (1) Activities conducted at a site after a cleanup action is completed to ensure that the action is effective and operating properly. (2) Actions taken after construction to assure that facilities constructed to treat waste water will be properly operated, maintained, and managed to achieve efficiency levels and prescribed effluent limitations in an optimum manner.

Organic Chemicals (a.k.a., organics). Any chemical compound with a base of the element carbon. When these compounds contain elements such as chlorine, they can be very hazardous. Organic chemicals are used throughout farming and industry. Examples of organic compounds that are dangerous are toluene, benzene, chlordane, and polychlorinated biphenyls (PCBs).

Organic Matter. Carbon-containing waste in plant or animal matter and originating from domestic or industrial sources.

Organics. Chemicals and compounds containing carbon.

Organic Vapor Analyzer (OVA). A trade name for a flame ionization detector.

Organism. Any living thing.

Organophosphates. Pesticide chemicals that contain phosphorus; used to control insects. They are short-lived, but some can be toxic when first applied.

Osmosis. The tendency of a fluid to pass through a permeable membrane such as the wall of a living cell into a less concentrated solution so as to equalize the concentrations on both sides of the membrane.

Outfall. The place where an effluent is discharged into receiving waters.

Overburden. The rock and soil cleared away before mining.

Overland Flow. A land application technique that cleanses wastewater by allowing it to flow over a sloped surface. As the water flows over the surface, the contaminants are removed and the water is collected at the bottom of the slope for reuse.

Overturn. The period of mixing (turnover), by top to bottom circulation, of previously stratified water masses. This phenomenon may occur in spring and/or fall, or after storms. It results in a uniformity of chemical and physical properties of the water at all depths.

Oxidant. A substance containing oxygen that reacts chemically in air to produce a new substance. The primary ingredient of photochemical smog.

Oxidation. (1) The addition of oxygen, which breaks down organic waste or chemicals such as, cyanides, phenols, and organic sulfur compounds in sewage by bacterial and chemical means. (2) Oxygen combining with other elements. (3) The chemical process whereby electrons are removed from a molecule.

Oxidation Pond. An artificial lake or body of water in which bacteria consumes waste. It is used most frequently with other waste treatment processes. An oxidation pond is basically the same as a sewage lagoon.

Oxygenated Solvent. An organic solvent containing oxygen as part of the molecular structure. Alcohols and ketones are oxygenated compounds often used as paint solvents.

Ozone (03). Found in two layers of the atmosphere, the stratosphere, and the troposphere. In the stratosphere (the atmospheric layer beginning at 7 to 10 miles above the Earth's surface), ozone is a form of oxygen found naturally which provides a protective layer shielding the earth from ultraviolet radiation's harmful health effects on humans and the environment. In the troposphere (the layer extending up to 7 to 10 miles from the Earth's surface), ozone is a chemical oxidant and major component of photochemical smog. Ozone can seriously affect the human respiratory system and is one of the most prevalent and widespread of all the criteria pollutants for which the Clean Air Act required U.S. EPA to set standards. Ozone in the troposphere is produced through complex chemical reactions of nitrogen oxides (which are among the primary pollutants emitted by combustion sources), hydrocarbons (released into the atmosphere through the combustion, handling and processing of petroleum products), and sunlight.
Ozone Depletion. Destruction of the stratospheric ozone layer, which shields the Earth from ultraviolet radiation harmful to biological 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 catalytically destroy ozone molecules.

P

Parcel. A quantity of land that is being considered for transfer or lease. The term may or may not be synonymous with "site." It is not intended to represent a tract of land that has been surveyed by a licensed surveyor for which a legal description (meets and bounds survey) of the tract has been or will be prepared.

Particulate Loading. The mass of particulates per unit volume of air or water.

Particulate Matter (PM). Airborne solid or liquid matter. The primary health concern related to particulate matter is respiratory distress.

Particulates. Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions.

Parts per Billion (ppb). The term means one part in a billion parts and is equal to micrograms per liter (ttg/L) in the metric system. For liquids, this is the approximate equivalent of one drop of water in a full olympic-sized swimming pool. Because some chemicals are very toxic even at low concentrations, ppb has become a standard unit of measurement in the industry.

Parts per Million (ppm). The term means one part in a million parts and is a unit of measurement 1,000 times greater than one part per billion for liquids, roughly the equivalent of one drop of liquid in a filled gas tank of a full-sized car. The metric system equivalent is milligrams per liter (mg/L).

Passive Diffusion Bag. A cylindrical plastic bag constructed of low-density polyethylene (4 millimeters thick) containing volatile organic aromatic (VOA)-free, deionized water. These bags are used to collect groundwater samples that can be analyzed for volatile organic compounds (VOCs). These bags are lowered into the screened area of a well using a weighted line and allowed to equilibrate with the surrounding water. The bags are then removed from the well and the water is transferred to VOA viles.

PD-680. Cleaning solvent (Stoddard solvent), a petroleum distillate.

Percent Recovery. The amount of chemical found expressed as the percent of chemical added from analysis of a method spike sample. Results indicate the accuracy of the analytical technique.

Percolation. The movement of water downward and radially through soil layers, usually continuing downward to the groundwater.

Permeability. The rate at which liquids pass through soil or other materials.

Permit. An authorization, license, or equivalent control document issued by U.S. EPA or an approved state agency to implement the requirements of an environmental regulation; e.g., a permit to operate a wastewater treatment plant or to operate a facility that may generate harmful emissions.

Persistence. Refers to the length of time a compound, once introduced into the environment, stays there. A compound may persist for less than a second or indefinitely.

Pesticide. A chemical used by farmers or gardeners to combat agricultural pests. Pesticides are classified according to the target pests affected-insecticides affect insects; fungicides, fungi; herbicides, plants; rodenticide, rodents; bacteriocide, bacteria; miticide, mites; nematocide, worms; molluscicide, mollusks. Some pesticides are probable human carcinogens, and some can cause cancer in animals. Exposure to high levels of some pesticides can cause liver, kidney, and central nervous system damage.

pH. A measure of the acidity or alkalinity of a liquid or solid material. Numerically equal to 7 for neutral solutions, increasing with alkalinity, decreasing with acidity.

Phenols. Organic compounds that are by-products of petroleum refining, tanning, and textile, dye, and resin manufacturing. Low concentrations cause taste and odor problems in water; higher concentrations can kill aquatic life and humans.

Phosphates. Generic term for chemical compounds containing phosphorus. Commonly used in fertilizers.

Phosphorus. A nonmetallic chemical element naturally occurring in phosphates. Phosphorus is important in lakes and other water bodies as a source of nutrition for plant and animal life. Increased phosphorus levels result from discharge of phosphorus-containing materials into surface water.

Photoionization Detector (PH)). Equipment used to measure soil vapors.

Physical and Chemical Treatment. Processes generally used in large-scale wastewater treatment facilities. Physical processes may involve air stripping or filtration. Chemical treatment includes coagulation, chlorination, or ozone addition. The term can also refer to treatment processes, treatment of toxic materials in surface waters and groundwater, oil spills, and some methods of dealing with hazardous materials on or in soils.

Physical Site Inspections. Observation of the interior and exterior of a facility and its surrounding area, or of the environmental conditions in an area; noting the obvious or likely presence of or past use of hazardous substances or disclosure factors, as evidenced by the presence of structures associated with the use of hazardous substances or petroleum substances; stressed vegetation; stains; structures or artifacts of historical or cultural importance; threatened or endangered species or their habitats; unusual geologic or floodplain conditions; or valuable mineral resources.

Piezometer. Typically, a 2-inch diameter well screened at a particular depth within groundwater. These wells are ordinarily used to determine groundwater levels as caused by hydrostatic pressure. Groundwater samples can be, but are not normally, collected from these wells.
Piezometric Surface. An imaginary surface representing the static head of groundwater and defined by the level to which water will rise in a well (synonymous with potentiometric surface).

Pile. (1) A heap of waste. (2) The fuel element in a nuclear reactor.

Pilot Scale. Treatability tests performed on a small then a large scale to simulate the physical, as well as chemical, parameters of a process.

Plankton. Tiny organisms that live in water near the surface and serve as food for fish and larger organisms.

Plastics. Nonmetallic compounds that result from a chemical reaction, and are molded or formed into rigid or pliable construction materials or fabrics.

Plugging. (1) The act or process of stopping the flow of water, oil, or gas into or out of a formation through a borehole or well penetrating that formation. (2) Stopping a leak or sealing off a pipe or hose.

Plume. A body of contaminated groundwater or soil gas traceable to a specific source. The movement of groundwater is influenced by such factors as local groundwater flow pattern, the characteristics of the aquifer in which the groundwater is contained, and the density of contaminants. Soil gas movement depends on the chemical nature of the compound and the type of soil where it is present.

PneuLogTM Technology. A proprietary (Praxis Environmental Technologies, Inc.) technique used to evaluate and optimize SVE systems. An airflow indicator is moved along the length of a well screen during vacuum extraction and gas concentrations are monitored continuously by sampling through a tube terminated just behind the flow indicator. The flow measurement yields a vertical air permeability profile and identifies preferential flow paths. The concentration measurement identifies strata from which contaminated air is extracted and yields a profile of the soil contamination. The combination of airflow and contaminant concentration versus depth effectively characterizes each distinct soil interval.

Point Source. A stationary location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, e.g., a pipe, ditch, ship, ore pit, factory smokestack.

Pollutant Standard Index (PSI). Measure of adverse health effects of air pollution levels in major cities.

Pollution. Generally, the presence of matter or energy whose nature, location or quantity produces undesired environmental effects. Under the Clean Water Act, for example, the term is defined as the man-made or man-induced alteration of the physical, biological, and radiological integrity of water.

Pollution Prevention Program (PPP). Any program or practice that reduces quantity of substance, pollutants, or contaminants in the waste stream.

Polychlorinated Biphenyl (PCB). Any of a family of industrial compounds produced by chlorination of biphenyls. These compounds accumulate in organisms and concentrate in the food chain with resultant pathogenic and teratogenic effects. They also decompose very slowly. Sale or new use was banned by law in 1979. The primary contaminant found in Operable Unit B1 at the southern end of McClellan. It is a component of a heavy oil used as an insulating material in electrical transformers.

Polyelectrolytes. Synthetic chemicals that help solids to clump during sewage treatment.

Polyethylene. A type of plastic; a polymerized ethylene resin, used for containers, etc. This plastic is compatible with many chemicals and is used in a variety of environmental applications.

Polymer. Basic molecular ingredients in plastic.

Polyvinyl Chloride (PVC). A tough, environmentally indestructible plastic that releases hydrochloric acid when burned.

Population. A group of interbreeding organisms of the same kind occupying a particular space. Generically, the number of humans or other living creatures in a designated area.

Porosity. The ratio of openings (voids) to the total volume of soil.

Positive Data. Analytical results for which measurable concentrations (i.e., above a quantization limit) are reported. May have data qualifiers attached.

Post Closure. The time period after the shutdown of a waste management or manufacturing facility during which the site may continue to be monitored. For monitoring purposes, this is often considered to be 30 years.

Potable Water. Water that is safe for drinking and cooking.

Potentially Responsible Party (PRP). Any individual or company—including owners, operators, transporters, or generators—potentially responsible for, or contributing to, the contamination problems at a Superfund site. Whenever possible, U.S. EPA requires PRPs through administrative and legal actions, to clean up hazardous waste sites they have contaminated.

Potentiometric Surface. A surface that represents the water elevations measured at a number of points in an aquifer; that is, it represents the height in feet above a datum plane, such as mean sea level, at which the water level stands in tightly cased wells that, penetrate the same aquifer or zone.

Precipitate. A solid that separates from a solution because of some chemical or physical change.

Precipitation. Removal of solids from liquid waste so that the hazardous solid portion can be disposed of safely; removal of particles from airborne emissions.

Precipitators. Air pollution control devices that collect particles from an emission.
Precursor. In photochemical terminology, a compound such as a volatile organic compound (VOC) that "precedes" an oxidant. Precursors react in sunlight to form ozone or other photochemical oxidants.

Preliminary Assessment/Site Inspection (PA/SI). The stage before a full-scale remedial investigation. Provides preliminary sampling data to determine whether a site requires a full-_ scale study. Sites are identified to the U.S. EPA through reports of spills or other federal reporting requirements, citizens' complaints, investigations by government agencies, and submissions by state agencies. Once identified, sites are listed in the Comprehensive Environ-mental Response and Liability Information System (CERCLIS) for subsequent evaluation. The U.S. EPA then assembles information on the site and conducts a preliminary assessment (PA) to determine the scope of the problem. The PA focuses on determining whether the site presents a risk of releasing hazardous substances and may consist only of a review of existing data but might also include a site inspection. If the PA shows that the site presents a threat of a release of hazardous substances, a site investigation (SI) is conducted to gather more data about hazardous substances at the site and determine which particular people and which segments of the environment might be affected and also those pathways along which the hazardous substances might migrate.

Preliminary Remediation Goals (PRGs). Preliminary cleanup levels established by the regulatory agencies for a specific site prior to determining the final cleanup level. Pretreatment. Processes used to reduce, eliminate, or alter the nature of wastewater pollutants from non-domestic sources before they are discharged into publicly owned treatment works.

Prevention. Measures taken to minimize the release of wastes to the environment.

Prevention of Significant Deterioration (PSI)). U.S. EPA program in which state and/or federal permits are required to restrict emissions for new or modified sources in areas where air quality is already better than levels required to meet primary and secondary ambient air quality standards.

Primary Drinking Water Regulation. Applies to public water systems and specifies a contaminant level, which, in the judgment of the U.S. EPA Administrator, will have no adverse effect on human health.

Primary Waste Treatment. First steps in wastewater treatment; screens and sedimentation tanks are used to remove most material that floats or will settle. Primary treatment results in the removal of about 30% of carbonaceous biochemical oxygen demand from domestic sewage.

Privately Owned Vehicle (POV). A vehicle not owned by the military. A personal or company-owned vehicle being used, stored, or shipped on military property.

Process Weight. Total weight of all materials, including fuel, used in a manufacturing process. It is used to calculate the allowable particulate emission rate from the process.

Production Well (PW). A well that produces water for domestic, industrial, or agricultural water supplies: City wells (municipal wells) are production wells.

Property Categorization Factors. Hazardous substances or conditions that, if present, may pose a threat to human health or the environment. They are generally related to the storage, use, disposal, or release of hazardous substances as defined in CERCLA Section 101 (14) and petroleum substances.

Proposed Plan (PP). A summary of remedial alternatives for a contaminated site, including a preferred alternative and the reasons for its selection. This step is the community's opportunity to review and comment on all cleanup alternatives under consideration. The responses to the comments are presented in the Record of Decision (ROD). All changes from the Proposed Plan are explained in the ROD.

Proposition 65. California's Safe Drinking Water and Toxics Enforcement Act of 1986; protects drinking water supplies and provides for warning of possible exposure to toxic substances.

Proteins. Complex nitrogenous organic compounds of high molecular weight that contain amino acids as their basic unit and are essential for growth and repair of animal tissue. Proteins are fundamental components of all living cells and include many substances such as enzymes, hormones, and antibodies that are necessary for the proper functioning of an organism.

Public Affairs (PA). Air Force office of Public Affairs.

Public Comment Period. A period of time after the release of a document when the public has an opportunity to submit comments on the document. There is a mandatory response period from the authors of the reports. Comment periods can range from 30 to 60 days (see Responsiveness Summary).

Public Health Evaluation. A quantitative assessment of the potential risks to humans as a result to specific chemical exposure.

Public Meeting. A meeting open to the public. Experts are available to present information and answer questions. Citizens are encouraged to ask questions and offer comments.

Public Notices. A notice published in major local newspapers, broadcast via local radio stations, or sent in individual mailings to announce agency decisions, major project milestones, public meetings, or to solicit public comment on agency actions.

Public Participation. Cal/EPA's program to inform and involve the public in hazardous waste site cleanup and hazardous waste permit decisions.

Public Works System. A system that provides piped water for human consumption to at least 15 service connections or regularly serves 25 individuals.

Publicly Owned Treatment Works (POTW). A waste treatment works owned by a state, unit of local government, or Indian tribe, usually designed to treat domestic wastewaters.

Pumping Station. Mechanical devices installed in sewer or water systems or other liquid-carrying pipelines that move the liquids to a higher level.
Pumping Wells. Wells whose purpose is to bring groundwater to the surface for water supplies or for removal of contaminants.

Purge (Wells). Pumping out well water to remove drilling debris or impurities; also conducted to bring fresh groundwater up into the casing for sample collection. The latter is a means of collecting a representative water sample from the aquifer being investigated.

Pyrolysis. Experimental hazardous waste thermal treatment process by which organic wastes are decomposed in an oxygen deficient atmosphere at high temperatures.

Q

Quality Assurance (QA). A system of activities to assure that the quality control system is performing adequately.

Quality Assurance Project Plan (QAPP). Describes the policy, organization, functional activities, and quality assurance and quality control protocols necessary to achieve data quality objectives dictated by the intended use of the data.

Quality Control (QC). A system of specific efforts designed to test and control the quality of data obtained.

Quantitation Limit. The lowest level at which a chemical may be accurately quantified. Usually equal to the detection limit multiplied by a factor of 3 to 5, but varies among chemicals and between samples.

R

Radioactivity. The property of some elements (such as radium or uranium) to spontaneously emit alpha or beta particles or gamma rays through the disintegration of the atomic nucleus.

Radiological Safety Officer (RSO). The person responsible to ensure that goods containing radionuclides are properly handled and any accidental releases are properly remediated. Also referred to as a Radiological Protection Officer (RPO).

Radionuclides. Elements that are radioactive, for example, radium 226.

Radius of Influence. The maximum distance away from an air injection or extraction source that is significantly affected by a change in pressure and induced movement of air. Generally used in reference to SVE wells. May not correspond with a cleanup zone and can be very interpretive.

Radon Assessment and Mitigation Program (RAMP). Department of Defense program begun in 1988 to assess potential contamination of Air Force facilities by radon.

Raw Sewage. Untreated wastewater.

RCRA Facility Assessment (RFA). An RFA is the first phase of the RCRA corrective action program for a facility consisting of a records review and site inspection to gather information on releases at the facility. The RFA process includes an evaluation of solid waste management units (SWMUs) as well as preliminary determinations regarding the need for further investigation. The RFA roughly equates to the preliminary assessment (PA) conducted under the CERCLA environmental program.

RCRA Facility Investigation (RFI). An RFI is the second phase of the RCRA corrective action program for a facility conducted at installations where the RCRA Facility Assessment (RFA) identified the need for further evaluation. The RFI consists of multimedia investigations conducted to characterize the extent of releases at the RCRA facility. The RFI roughly equates to the remedial investigation (RI) conducted under the CERCLA environmental restoration process.

Reasonably Available Control Technology (RACY). The lowest emissions limit that a particular source is capable of meeting by the application of control technology that is both reasonably available, as well as technologically and economically feasible. RACT is usually applied to existing sources in non-attainment areas and most cases is less stringent than new source performance standards.

Rebound. An increase in VOC concentrations after a remediation system is shut down, generally from VOCs desorbing from soil particles.

Receiving Waters. A river, lake, ocean, stream, or other watercourse into which wastewater or treated effluent is discharged. Action and anticipated timeframe, identifies the proponent, and explains why further environ-mental analysis and documentation is not required. It is used when the proposed federal action is exempt from the requirements of the National Environmental Policy Act (NEPA) or it has been adequately assessed in existing documents and determined not to be environ-mentally significant. A REC is typically used for a federal action such as construction at an existing facility or its lease.

Recoverable. Capability and likelihood of being recovered from solid waste for a commercial or industrial use.

Recycle/Reuse. The process of minimizing the generation of waste by recovering usable products that might otherwise become waste. Examples are the recycling of aluminum cans, wastepaper, and bottles.

Reference Dose (RfD). Toxicity value used most often in evaluating non-carcinogenic effects resulting from exposures at Superfund sites. See specific entries for chronic RfDs, subchronic RfDs, and developmental RfDs.

Regeneration. Manipulation of individual cells or masses of cells to cause them to develop into whole plants.

Regional Response Team (RRT). Representatives of federal, local, and state agencies who may assist in coordination of activities at the request of the On-Scene Coordinator before and during a Superfund response action.

Regional Water Quality Control Board (RWQCB). An entity within Cal/EPA responsible for the protection of groundwater. Designated as a support agency to Department of Toxic Substances Control.

Registered Environmental Assessor (REA). An individual who, through academic training, occupational experience, and reputation, is qualified to objectively conduct one or more aspects of an environmental assessment, and who maintains recognized, professional registration. REAs may include, but are not limited to, specialists trained as chemists, toxicologists, engineers, geologists, physicians, and attorneys.

Reinjection. A discharge technology that consists of injecting treated water back into the aquifer through a well.

Release. Any (unintentional or accidental) spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes:
(a) Any release that results in exposure to persons solely within a workplace, with respect to a claim that such persons may assert against the employer of such persons;
(b) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine;
(c) Release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under Section 170 of such Act, or, for the purposes of Section 104 of this title or any other response action, any release of source by-product, or special nuclear material from any processing site designated under Section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and
(d) The normal application of fertilizer.

Remedial Action (RA). Action taken to stop or substantially reduce a release, or threat of release, of hazardous substances that are not of immediate threat to human health or the environment. If the substances pose an immediate threat, they will be removed in a removal action.

Remedial Alternative. A method or combination of methods designed to protect public health, welfare, and the environment over the long term from releases of hazardous substances at a Superfund site. Remedial alternatives are usually projects or a combination of technologies that contain, remove, or destroy most of the contaminants in the air, water, soil, and/or groundwater at a Superfund site.

Remedial Design (RD). A phase of the remedial action that follows the remedial investigation/feasibility study and record of decision, and includes the development of engineering drawings and specifications for a site cleanup.

Remedial Investigation/Feasibility Study (RI/FS). The step in the Installation Restoration Program (IRP) process that determines the scope of remedial action to be undertaken. The purpose of the RI/FS is to assess site conditions and evaluate alternatives that can be used in cleaning up the site. The U.S. EPA then selects one of the alternatives. In the RI, extensive soil and groundwater sampling is performed and reports describing the results of the tests are prepared. The investigation determines the nature of the site's geology and hydrogeology, locates the sources of contamination, identifies the type and mobility of contaminants present, and defines the nature of any threat to human health and the environment. Following the RI, an FS is prepared that develops a range of remedial alternatives and the extent to which they comply with the criteria specified in CERCLA. The RI/FS process is usually both costly and time consuming and may become more so if the U.S. EPA elects to remediate a site in what are known as "operable units" or OUs, which represents a phased approach to cleanup. OUs may consist of, for example, a certain geographical portion of the site or groundwater contamination at the site, or remediation of areas adjacent to the site. Most major cleanup sites include OUs.

Remedial Project Manager (RPM). The U.S. EPA or state official responsible for overseeing remedial action at a site. Accountable for the technical quality, schedule, and cost of work.

Remedial Response. A long-term action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to public health.

Remediate. To remove or isolate hazardous materials that have contaminated an area so the area can be used for other purposes without fear of exposing humans, plants, or animals to adverse environmental conditions.

Removal. The cleanup or removal of released hazardous substances from the environment; the disposal of removed material; actions taken in response to the threat of a release; and the actions taken to monitor, assess, and evaluate a release or threat of a release.

Removal Action. An expedited action taken in response to imminent and significant threats to public health or the environment.

Reportable Quantity (RQ). The quantity of a hazardous substance that triggers requirements under CERCLA to report a release. If a substance is released in amounts exceeding its RQ, the release must be reported to the National Response Center, the State Emergency Response Commission (SERC), and community emergency coordinators for areas likely to be affected.

Request for Proposal (RFP). An RFP is issued by an entity seeking a proposal for services or goods.

Reservoir. Any natural or artificial holding area used to store, regulate, or control water.

Residential Well. A privately owned well that produces water for domestic or agricultural water supplies.

Residual. Amount of a pollutant remaining in the environment after a natural or technological process has taken place, e.g., the sludge remaining after initial wastewater treatment, or particulates remaining in air after the air passes through a scrubbing process.

Resistance. For plants and animals, the ability to withstand poor environmental conditions and/or attacks by chemicals or disease. The ability may be inborn or developed.

Resource. A person, thing, or action needed for living or to improve the quality of life.

Resource Conservation. Reduction of the amounts of solid waste that are generated; reduction of overall resource consumption,

Resource Conservation and Recovery Act (RCRA). A longer, detailed description of RCRA is provided to give the reader a better understanding of RCRA's history and functions. RCRA was passed in 1976 and was significantly amended by the Hazardous and Solid Waste Amendments (HSWA) in 1984. RCRA regulates ongoing hazardous waste handling and disposal as opposed to CERCLA, which primarily provides for the cleanup of the past disposal of hazardous materials (including waste). The purpose of the RCRA is to ensure that hazardous waste will be treated, stored, and disposed of so as to minimize the present and future threat to human health and the environment. The Act does this by providing for "cradle to grave" control over hazardous waste through the imposition of management requirements of generators (producers) and transporters of hazardous waste and on the owners and operators of treatment, storage, and disposal facilities (TSDF). RCRA is divided into ten subtitles; A through J. Subtitle C is of primary significance since it establishes the national hazardous waste management program. Under Subtitle C, the U.S. EPA is required to identify what substances are to be considered hazardous wastes and requires that generators handle wastes properly and prepare manifests to track the shipment of the wastes to treatment, recycling, or disposal facilities. Transporters of hazardous waste must comply with regulations governing manifests, labeling, and delivery of waste to TSDF. Transporters must also comply with Department of Transportation (DOT) requirements concerning containers, labeling, placarding of vehicles, and spill response. TSDFs must comply with performance of untreated hazardous wastes. In addition, TSDFs must obtain a permit setting forth the conditions under which they may operate. The permitting process for TSDFs is lengthy and expensive. Two aspects of RCRA important to generators are the materials considered hazardous waste under RCRA and the quantity and length of time that a generator can keep hazardous waste before being required to transfer it to a TSDF. The definition of a hazardous waste under RCRA is complicated but essentially consists of two categories of waste: (1) those wastes that the U.S. EPA has listed as hazardous; and (2) wastes that exhibit the characteristics of ignitability, corrosivity, reactivity, or toxicity. Generators of hazardous waste can store waste for no more than 90 days unless they are permitted under RCRA as a TSDF. If, however, a generator produces between 100 and 1,000 kilograms per (kg) month, the storage time is increased and if less than 100 kilograms per (kg) month is produced, the generator is exempt from regulation. The U.S. EPA may inspect any hazardous waste generator, transporter, or TSDF. If there have been spills or releases or if there is suspected noncompliance with RCRA, the U.S. EPA can conduct a RCRA Facility Assessment (RFA) which consists of a review of records and a site inspection. If further evaluation is required, the U.S. EPA can conduct a RCRA Facility Investigation (RFI) consisting of multimedia (i.e., soil, air, and groundwater) investigation to better characterize the extent of the release or noncompliance. Penalties for noncompliance with RCRA can be expensive, at up to $25,000 per day and higher.

Resource Conservation and Recovery Information System (RCRIS). A database administered by the U.S. EPA Office of Solid Waste and Emergency Response. The database provides information on (1) treatment, storage, and disposal facilities; (2) large quantity waste generation facilities; and (3) small quantity waste generation facilities.

Resource Recovery. The process of obtaining matter or energy from materials formerly discarded.

Response Action. A CERCLA-authorized action involving either a short-term removal action or a long-term removal response that may include but is not limited to removing hazardous materials from a site to an U.S. EPA-approved hazardous waste facility for treatment, containment, or destruction; containing the waste safely onsite; destroying or treating the waste onsite; and identifying and removing the source of groundwater contamination and halting further migration of contaminants.

Responsiveness Summary (RS). The section within the record of decision (ROD) that summarizes comment received from the public during the public comment period, and provides U.S. EPA's or other lead agency responses to them.
Restoration. Measures taken to clean up a site.

Restoration Advisory Board (RAB). A board consisting primarily of members of the public, which replaced the Technical Review Committee at McClellan. RAB members have the opportunity to review cleanup reports and provide advice to decision makers on investigation and cleanup matters. The RAB is a forum for the exchange of information between community members, regulatory agencies, and base personnel.
Risk Assessment. A study based on the results of the remedial investigation to determine the extent to which chemical contaminants found at a Superfund site pose a risk to public health and the environment.

Risk Communication. The exchange of information about health or environmental risks between risk assessors, risk managers, the general public, news media, interest groups.

Risk Management. The process of evaluating alternative regulatory and non-regulatory responses to risk and selecting among them. The selection process necessarily requires the consideration of legal, economic, and social factors.

River Basin. The land area drained by a river and its tributaries.

Routine Analytical Services (RAS). The set of Contract Laboratory Program (CLP) analytical protocols that are used to analyze samples at most Superfund sites. These protocols are provided in the U.S. EPA Statement of Work (SOW) for the CLP (SOW for Inorganics; SOW for Organics) and must be followed by every CLP laboratory.

Run Off. That part of precipitation, snowmelt, or irrigation water that runs off the land into streams or other surface water. It can carry pollutants from the air and land into the receiving waters.

S

Safe Drinking Water Act (SDWA). Federal statute that establishes maximum contaminant levels for drinking water.

Salinity. The total quantity of dissolved salts in water, measured in parts per thousand.

Sample. A small amount or number that is representative of something being studied, such as sediments, soil, water, or fish taken from different locations. Samples are obtained to find out the nature and extent of pollution or contamination present in the environment and to determine areas where no contamination is present.

Sampling and Analysis Plan (SAP). Consists of a quality assurance project plan (QAPP) and a field-sampling plan (FSP). Used for all sampling activities.

Saturated Zone. Subsurface soils in an aquifer. All of the spaces between soil particles are filled with water.

Screen. The length of metal casing placed in a well that has openings to allow groundwater to flow into the casing.

Screening. Use of screens to remove coarse floating and suspended solids from sewage.

Screen Interval. Depths at which the well screen begins and ends.

Scrubber. Device that uses a liquid filter to remove gaseous and liquid pollutants from air stream.

Sediment. The layer of soil, sand, and minerals that covers the bottoms of lakes, rivers, creeks, and oceans and to which contaminants often adhere. It consists of very small particles of clay, silt, and sand.

Sedimentation. Letting solids settle out of wastewater by gravity during wastewater treatment.

Semiconfined Aquifer. An aquifer that is partially confined by a soil layer (or layers) of low permeability through which recharge and discharge can occur.

Semivolatile Organic Compounds (SVOCs). A group of chemical compounds that evaporate in air at a slower rate than volatile organic compounds (VOCs). Many are suspected or known to cause cancer or other illness. Also known as semivolatiles or semivolatile organics.

SESOIL. A computer model for predicting the movement and transport of a chemical (particularly those chemicals in petroleum products) in the vadose or saturated zone.
Silt. Fine particles of sand or rock that can be picked up by the air or water and deposited as sediment.

Sinking. Controlling oil spills by using an agent to trap the oil and sink it to the bottom of the body of water where the agent and the oil are biodegraded.
Site. Any area (landfills, storage facility, cleaning facility, etc.) where a hazardous substance is present as a result of a release of hazardous material from the facility as defined under CERCLA and as referred to in this and related environmental documents.

Site Investigation (SI). The SI is a CERCLA investigation conducted if a preliminary assessment indicates the need for further investigation. SIs routinely involve visual inspections and the collection and analysis of multimedia (i.e., soil, water, air) samples to evaluate the extent of the problem and to determine whether a more detailed study, such as a remedial investigation/feasibility study, is necessary. It follows and is more extensive than a preliminary assessment. The purpose is to gather information necessary to score the site, using the Hazard Ranking System, and to determine if the site presents an immediate threat that requires prompt removal action.

Site-Specific Environmental Baseline Survey (SSEBS). A description of the environmental condition of a site or parcel conducted prior to the time the site is transferred or leased.

Slope Factor. A plausible upper-bound estimate of the probability of a response per unit intake of a chemical over a lifetime. The slope factor is used to estimate an upper-bound probability of an individual developing cancer as a result of a lifetime of exposure to a particular level of a potential carcinogen.

Sludge. A thickened solid/liquid waste of an industrial or recycling process; a semi-solid residue from industrial or water treatment processes that may be contaminated with hazardous materials.

Slurry. A watery mixture of insoluble matter that results from some pollution control techniques.

Smear Zone. Contaminants that stick to sol particles or are suspended in soil gas after the water table drops. This previously saturated (wet) area can be a secondary source of contamination to the groundwater.

Soil Borings. A hole drilled into the ground in order to take a sample or obtain a profile of the soil.

Soil Conditioner. An organic material like humus or compost that helps soil absorb water, build a bacterial community, and distribute nutrients and minerals.

Soil Gas. The gas contained in the space between soil particles. Contamination of soil gas may result from contamination by volatile organic compounds (VOCs) present in the soil or groundwater.

Soil Profile. A vertical section of the soil from the surface through all its horizons.

Soil Vapor Extraction (SVE). This technology uses gas extraction wells and vacuum pumps to remove volatile organic compounds (VOCs) (in gaseous form) from the unsaturated soil are above the water table. The contaminated vapor vacuumed from the soil is then treated to destroy VOC contamination.

Soil Vapor Extraction Well. An SVE well is drilled into the soil for extracting soil vapors or soil gas. Attached to the wells is equipment that creates a vacuum, which pulls air and vapors through the soil and up to the surface.

Soil Vapor Monitoring (SVM) Well. An SVM well is used for soil vapor monitoring (i.e., sampling) only—not for vapor extraction. SVM wells usually have a smaller diameter than SVE wells and have smaller screen intervals. Many times SVM wells are nested (i.e., several wells installed in a single borehole).

Sole Source Aquifer. An aquifer that supplies 50% or more of the drinking water of an area.

Solid Waste (SW). Nonliquid, nonsoluble materials ranging from municipal garbage to industrial wastes that contain complex, and sometimes hazardous, substances. Solid wastes include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Technically, solid waste also refers to liquids and gases in containers.

Solid Waste Disposal. The final placement of refuse that is not salvaged or recycled.

Speciated Compound. Specific ionic form of a chemical compound.

Species. A reproductively isolated aggregate of interbreeding populations of organisms.

Spill Prevention Control and Counter-measures (SPCC). These are actions taken by an installation to address potential releases of hazardous substances or petroleum products. An SPCC plan, which documents procedures established by an installation to effect these response actions, may be required for an installation pursuant to the Clean Water Act, RCRA, or SARA.

Stabilization. Conversion of the active organic matter in sludge into inert, harmless material.

Stagnation. Lack of motion in a mass of air or water, which tends to hold pollutants.

Standards. Prescriptive norms that govern action and actual limits on the amount of pollutants or emissions produced. U.S. EPA, under most of its responsibilities, establishes minimum standards. States are allowed to be stricter.

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

State Historic Preservation Officer (SHPO). SHPOs administer the national historic preservation program at the state level, review National Register of Historic Places nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review. SHPOs are designated by the governor of their respective states or territory.
Stationary Source. A fixed, nonmoving producer of pollution, mainly power plants and other facilities using industrial combustion processes.

Storage. Temporary holding of waste pending treatment or disposal. Storage methods include containers, tanks, waste piles, and surface impoundments.

Storage Tank. Any manufactured non-portable covered device used for containing pumpable hazardous wastes.

Storm Sewer or Storm Drain. A system of pipes (separate from sanitary sewers) that carries only surface water (or storm water) runoff from building and land surfaces.

Stratification. Arrangement or deposition into layers.

Stratosphere. The portion of the atmosphere that is 10 to 25 miles above the Earth's surface.

Strip-Mining. A process that uses machines to scrape soil or rock away from mineral deposits just under the Earth's surface.

Sump. A pit or tank that catches liquid runoff for drainage or disposal.

Sump Pump. A mechanism for removing water or wastewater from a sump or wet well.

Superfund. The program operated under the legislative authority of CERCLA and SARA that funds and carries out the U.S. EPA solid waste emergency and long-term removal/ remedial activities. These activities include establishing the National Priorities List, investigating sites for inclusion on the list, determining their priority level on the list, and conducting and/or supervising the ultimately determined cleanup and other remedial actions.

Superfund Amendments and Reauthorization Act (SARA). SARA is the law and amendments to CERCLA that address liability, compensation, cleanup, and emergency response for hazardous substance releases. Title III of SARA established the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986.

Surface Impoundment. Treatment, storage, or disposal of liquid hazardous wastes in ponds.

Surface Water. Bodies of water that are above ground, such as lakes, ponds, rivers, streams, and creeks.

Surveillance System. A series of monitoring devices designed to determine environmental quality.

T

Tanks. Stationary devices designated to contain an accumulation of hazardous waste and constructed primarily or entirely of non-earthen materials such as concrete, steel, and plastic.

Target Compound List (TCL). Developed by U.S. EPA for Superfund site sample analyses. The TCL is a list of analytes (34 volatile organic chemicals, 65 semivolatile organic chemicals, 19 pesticides, 7 polychlorinated biphenyls, 23 metals, and total cyanide) for which every Superfund sample must be analyzed using the Routine Analytical Services of the U.S. EPA Contract Laboratory Program.

Target Zone/Target Area. The target zone/target area is a two-dimensional representation (the area) of the volume (three-dimensional) of the aquifer containing contaminant concentrations greater than a specified level.

Technical Assistance for Public Participation (TAPP). A Department of Defense program that provides technical assistance for community members of Restoration Advisory Boards for the review of technical documents. The final rule was published February 2, 1998, and was developed by a working group composed of representatives from different military organizations and the U.S. EPA.

Technical Assistance Grants (TAG). A monetary grant established by the SARA. TAGS help affected communities obtain assistance to help them understand and comment on site-related information and thus participate in cleanup decisions.

Technical Review Committee (TRC). A committee made up of McClellan AFB Installation Restoration Program (IRP), agency, county, city, political and public representatives designed to relay information to the public about installation restoration activities ongoing at the base. Active from July 1990 until October 1994, when it was replaced by the Restoration Advisory Board (RAB).

Teflon®. Trade name for the fluorinated carbon polymer polyperfluoroethylene.

Tetrachloroethene (PCE). Also known as perchloroethylene, a stable colorless liquid used as a dry cleaning and industrial solvent in pharmaceuticals and medicine, and for metal cleaning.

Thermal Treatment. Process by which hazardous waste is rendered non-hazardous or is reduced in volume by exposing the waste to high temperatures. (See also incineration.)

Threshold Limit Value (TLV). Represents the air concentrations of chemical substances to which it is believed that workers may be exposed daily without any adverse health effect.

Threshold Planning Quantity. 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 under SARA Title M.

TO-14, TO-15, and TO-15S. Methods used to determine volatile organic compound in ambient air using canister sampling and gas chromatography.

Tolerances. The permissible residue level for pesticides in raw agricultural produce and processed foods. Whenever a pesticide is registered for use on a food or a feed crop, a tolerance (or exemption from the tolerance equipment) must be established. U.S. EPA establishes the tolerance levels, which are enforced by the Food and Drug Administration and the Department of Agriculture.

Topography. The configuration of the surface area, including its relative elevations and the position of natural and artificial features.

Total Dissolved Solids (TDS). The evaporated residue remaining in liquid after it is passed through a standard filter.

Total Exposure Point. A point of potential exposure to substances from more than one exposure pathway.

Total Petroleum Hydrocarbons (TPH). The total concentration of hydrocarbons analyzed in a sample by an analytical chemistry laboratory. The hydrocarbons, which can be measured as parts per million or parts per billion, are measured together and not separated into individual substances such as gasoline or diesel.

Total Petroleum Hydrocarbons as Diesel (TPH-D). The concentration of the hydrocarbon chemicals found in diesel, analyzed in a sample by an analytical chemistry laboratory.

Total Petroleum Hydrocarbons as Gas (TPH-G). The concentration of the hydrocarbon chemicals found in gasoline analyzed in a sample by an analytical chemistry laboratory.

Total Suspended Solids (TSS). Materials that are retained on a standard filter after liquid is passed through it.

Totally Enclosed Treatment Facility. A hazardous treatment facility, which is directly connected, to an industrial production process constructed and operated to prevent waste release into the environment.

Toxic. Poisonous. Capable of producing a harmful effect to living organisms.

Toxic Chemical Release Form. Information form required to be submitted by facilities that manufacture, process, or use (in quantities above a specific amount) chemicals listed under the Superfund Amendments and Reauthorization Act Title III.

Toxic Pollutants. Materials contaminating the environment that cause death, disease, birth defects in organisms that ingest or absorb them. The quantities and length of exposure necessary to cause these effects can vary widely.

Toxic Release Inventory (TRI). The Toxics Release Inventory (TRI) contains information about more than 650 toxic chemicals that are being used, manufactured, treated, transported, or released into the environment. Manufacturers of these chemicals are required to report the locations and quantities of chemicals stored on site to state and local governments. The reports are submitted to the EPA and state governments. EPA compiles this data in an on-line, publicly accessible national computerized database. Using this information, citizens, businesses, and governments can work together to protect the quality of their land, air, and water.

Toxic Substance. A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

Toxic Substances Control Act (TSCA). U.S. EPA to gather information on chemical risks. TSCA regulations also govern the cleanup of PCBs, dioxins, and asbestos.

Toxic Waste. A waste that poses a substantial present or potential hazard to human health or the environment, when improperly managed. Includes wastes, which are toxic (poisonous), carcinogenic, mutagenic, teratogenic, or phytotoxic to aquatic species.

Toxicant. A poisonous agent that kills or injures animal or plant life.

Toxicity. The degree of danger posed by a substance to animal or plant life.

Toxicology. The science and study of poisons control.

Transpiration. The process by which water vapor is lost to the atmosphere from living plants. The term can also be applied to the quantity of water thus dissipated.

Transfer. In real estate, it includes permits to other government agencies, donations, land exchanges, transfers of federal government property accountability, easements, leases, or licenses.

Treatment. Any method, technique or process, which changes the physical, chemical, or biological composition of any hazardous waste and so renders it non-hazardous safe for transport, capable of recovery and/or storage, or reduces its volume.

Treatment, Storage, and Disposal Facility (TSDF). Site where a hazardous substance is treated, stored, or disposed. TSDFs are regulated by U.S. EPA and states under RCRA.

Tremie. The pipe through which sand, cement, or bentonite is pumped into place during the construction of a well.

Tremie Method. Method whereby bentonite/cement slurries are pumped for uniform emplacement to seal the annular space of a well.

1,1,1-Trichloroethane (1,1,1-TCA). A volatile, colorless, organic solvent used for industrial cleaning and degreasing. Medical conditions generally aggravated by exposure include liver damage, heart disorders, and sensitive skin.

Trichloroethene (TCE, trichioroethylene). A stable, colorless liquid with a sweet odor, a low boiling point, and which readily evaporates. It has many common uses such as a general solvent, a degreaser in dry cleaning, or in the manufacturing of pharmaceuticals. There is some evidence that TCE causes cancer in animals; however, the results from human disease studies have not shown an increase in cancer due to TCE exposure.

Trip Blank. A sample of organic-free water placed in the sample container in an uncontaminated laboratory area prior to fieldwork. These samples are prepared only for volatile organic compound samples and are handled as field samples are handled. Used to identify contamination from sample containers or transportation and storage procedures.

Trust Fund (CERCLA). A fund set up under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to help pay for cleanup of hazardous waste sites and for legal action to force those responsible for the sites to clean them up.

Turbidimeter. A device that measures the amount of suspended solids in a liquid.

Turbidity. (1) Haziness in air caused by the presence of particles and pollutants. (2) A similar cloudy condition in water due to suspended silt or organic matter.

U

Ultraviolet (UV). A form of radiation at the upper end of the visible light spectrum. Excessive amounts of UV radiation can cause skin cancer. Prolonged exposure can have mutagenic effects.

Unconfined Aquifer. An aquifer whose upper level can extend to ground surface.

Underground Sources of Drinking Water. Refers to aquifers that are currently being used as sources of drinking water, and those that are capable of supplying a public water system. They have a total dissolved solids content of 10,000 parts per million or less, and are not "exempted aquifers."

Underground Storage Tank (UST). As defined and regulated by RCRA, a tank with 10% or more of its volume underground including piping connected to the tank; used to store petroleum products or CERCLA-regulated hazardous chemicals.

Unexploded Ordnance (UXO). An item of explosive ordnance (munitions) which has failed to function as designed or has been abandoned, discarded, or improperly disposed of and is still capable of exploding, causing damage to personnel or material.

Uniform Building Code (UBC). Published by the International Conference of Building Officials to improve the user's knowledge of code enforcement and the administration of a building inspection program. The UBC covers fire, life, and structural safety aspects of all buildings and related structures.

Unsaturated Zone. Interval from the ground surface downward in which open spaces between soil particles is filled with part air and part groundwater.
Upgradient. The direction from which groundwater is flowing at some specific depth below surface.

Urban Runoff. Storm water from city streets and adjacent domestic or commercial properties that may carry pollutants of various kinds into the sewer/storm water systems and/or receiving waters.

U.S. Environmental Protection Agency (U.S. EPA). The independent federal agency, established in 1970, that regulates environ-mental matters and oversees the implementation of environmental laws. As part of its mandate, the U.S. EPA regulates all aspects of hazardous waste, published in Section 40 of the Code of Federal Regulations.

UV/Ozone/Peroxide. A treatment system using ultraviolet light, ozone, and peroxide to break down contaminants dissolved in groundwater.

V

Vadose Zone. The area between the ground surface and the water table. Also called the unsaturated zone.

Vapor. The gaseous phase of substances that are liquid or solid at atmospheric temperature and pressure, e.g., steam.

Vapor Capture System. Any combination of hoods and ventilation system that captures or contains organic vapors so that they may be directed to an abatement or recovery device.

Vaporization. The change of a substance from liquid to a gas.

Vapor Piezometer Nest (VPN). VPNs are several wells installed in a single borehole and are used for soil vapor monitoring. May be considered a collection of soil vapor monitoring wells. A vapor piezometer is generally the same as a vapor well.

Vapor Well. Either a soil vapor extraction well or a soil vapor monitoring well.

VapourT Modeling. A mathematical model to estimate how volatile organic compounds (VOCs) will move through the unsaturated zone. For example, VapourT modeling can be used to estimate how VOCs move from soil to air or through soil to groundwater.

Variance. Government permission for a delay or exception in the application of given law, ordinance, or regulation.

Ventilation/Suction. The act of admitting fresh air into a space to replace stale or contaminated air; achieved by blowing air into the space. Similarly, suction represents the admission of fresh air into an interior space by lowering the pressure outside of the space, thereby drawing the contaminated air outward.

Visual Site Inspection (VSI). Observation of the exterior of a facility and its surrounding area, or of the environmental conditions in an area; noting the obvious or likely presence or past use of hazardous substances, as evidenced by the presence of structures associated with the use of hazardous substances or petroleum substances; stressed vegetation; stains; structures or artifacts of historical or cultural importance; threatened or endangered species or their habitats; unusual geologic or floodplain conditions; or valuable mineral resources.

VLEACH. A modeling program used to predict concentrations and mass flux rate of leachate leaving the vadose zone.

Volatile. Description of any substance that evaporates readily.

Volatile Organic Compounds (VOCs). Carbon-containing compounds that evaporate readily at room temperature. VOCs are commonly used in dry cleaning, metal plating, electronics manufacture, and metal degreasing. Some are known or suspected carcinogens; others are not carcinogenic. At high enough concentrations, VOCs can also have other health effects.

W

Waste. (1) Unwanted materials left over from a manufacturing process. (2) Refuse from places of human or animal habitation.

Waste Characterization. The identification and quantification of the contents and dimensions of a contaminated source.

Waste Treatment Plant (WTP). A facility containing a series of tanks, screens, filters and other processes by which pollutants are removed from water.

Wastewater. The spent or used water from individual homes, a community, a farm, or an industry that contains dissolved or suspended matter.

Wastewater Operations and Maintenance. Actions taken after construction to assure that facilities constructed to treat wastewater will be properly operated, maintained, and managed to achieve efficiency levels and prescribed effluent levels in an optimum manner.

Water Pollution. The presence in water of enough harmful or objectionable material to damage the water's quality.

Water Quality Criteria. Specific levels of water quality which, if reached, are expected to render a body of water suitable for its
designated use. The criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes.

Water Quality Standards. State-adopted and U.S. EPA-approved ambient standards for water bodies. The standards cover the use of the water body and the water quality criteria that must be met to protect the water for its designated use or uses.

Water Solubility. The maximum concentration of a chemical compound that can result when it is dissolved in water. If a substance is water-soluble it can very readily disperse through the environment.

Water Supplier. A person who owns or operates a public water system.

Water Supply System. The collection, treatment, storage, and distribution of potable water from source to consumer.

Watershed. The drainage area of a stream.

Water Table. The level below which the soil is saturated with water. Water located below the water table is referred to as groundwater.

Weight of Evidence. A U.S. EPA classification system for characterizing the extent to which the available data indicate that an agent is a human carcinogen.

Well. A bored, drilled, driven shaft, or a dug hole, whose depth is greater than the largest surface dimension and whose purpose is to reach underground water supplies or oil, or to store or bury fluids below ground.
Well Abandonment. The process of permanently closing wells. Abandoned wells are filled with grout so that contaminated groundwater cannot migrate via the well.

Well Cluster. Several wells installed as a group in a small area with each well extending to a different depth, to measure groundwater quality and water levels. Clusters may have from two to six separate wells.

Well Injection. The subsurface emplacement of fluids in a well.

Well Log. A record of installation of a well. It includes construction specifications of the well, depth, owner, location, a description of the profile, and the well driller prepares it. The State Department of Water Resources, some county agencies, and the U.S. Geological Service maintain well log records.

Well Plug. A watertight and gas-tight seal installed in a borehole or well to prevent movement of fluids.

Wetlands. An area that is regularly saturated by surface or groundwater and subsequently is characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions. Examples include swamps, bogs, fens, marshes, and estuaries.

Wildlife Refuge. An area designated for the protection of wild animals, within which hunting and fishing are either prohibited or strictly controlled.

Withdrawal. Water pumped out of a well.

Wood-Burning Stove Pollution. Air pollution caused by emissions of particulate matter, carbon monoxide, total suspended particulates, and polycyclic organic matter from wood-burning stoves.

Worker Right-to-Know. HAZCOM requirement that employers are required to inform their employees of all potential health impacts and risks caused by chemicals that workers are exposed to in their workplace. Base Environmental Engineer is responsible for ensuring that this requirement is met.

Working Level (WL). A unit of measure for documenting exposure to radon decay products. One working level is equal to approximately 200 picoCuries per liter.

Working Level Month (WLM). A unit of measure used to determine cumulative exposure to radon.

Z

Zone. A subsurface layer with high permeability layers containing groundwater moving in sand and gravel beds and with low permeability silt or clay layers separating the sand and gravel beds from those above or below them. Ground water in one zone may have water quality and flow direction different than zones above or below it. Six separate groundwater zones (A, B, C, D, E, and F) have been investigated at McClellan.

Zone of Capture. The area from which a well will draw in groundwater.

µg/L. Micrograms per liter, unit of measuring concentrations.

µg/kg. Micrograms per kilogram, unit of measuring concentrations.