

## ERB Acronym and Glossary – H

Acronym	Glossary	Definition
H	Henry's Law Constant	Provides a measure of the extent of chemical partitioning between air and water at equilibrium. The higher the constant, the more likely a chemical is to volatilize than to remain in water.
H	Hydrogen	The lightest of the chemical elements, it forms organic compounds with carbon. The amount of dissolved hydrogen in groundwater can also indicate the redox state and pH of the local environment.
H&S	Health and Safety	The laws concerned with health and safety at work.
H2	Hydrogen Gas	Hydrogen is a gas element which has an atomic number of 1 and an atomic weight of 1.0079. It combines with oxygen to form water (H2O) and is present in all organic compounds. A few types of bacteria can metabolize atmospheric hydrogen (H2). Hydrogen gas itself is not poisonous, but when it mixes with air it can easily ignite or explode.
HA	Health Advisory	A non-regulatory health-based reference level of chemical traces (usually in ppm) in drinking water at which there are no adverse health risks when ingested over various periods of time. Such levels are established for one day, 10 days, long term and life-time exposure periods. They contain a large margin of safety.
HAP	Hazardous Air Pollutant	Air pollutants which are not covered by ambient air quality standards but which, as defined in the Clean Air Act, may reasonably be expected to cause or contribute to irreversible illness or death. Such pollutants include asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides, and vinyl chloride.
HARP	Historic and Archeological Resources Plan	developed to preserve the historical and archeological resources of the United States of America.
HAZMAT	Hazardous Material	Any material which, because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a substantial hazard to human health or the environment when released or spilled.
HAZWOPER	Hazardous Waste Operations and Emergency Response	Clean-up operations required by a governmental body, whether Federal, state local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained); corrective actions involving clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA); voluntary clean-up operations at sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites; operations involving hazardous waste that are conducted at treatment, storage, disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations; and emergency response operations for

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		releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.
HC	Hydrocarbons	Chemical compounds that consist entirely of carbon and hydrogen.
HCFC	Hydrochlorofluorocarbon	Hydrochlorofluorocarbons (HCFCs) is one of a class of fluorocarbon. Fluorocarbons are carbon-fluorine compounds that often contain other elements such as hydrogen, chlorine, or bromine. Common fluorocarbons include chlorofluorocarbons and related compounds (also known as ozone depleting substances including hydrochlorofluorocarbon which is a CFC substitute).
HDPE	High Density Polyethelene	typically used to make land fill liners, plastic bottles, milk cartons and other products. It produces toxic fumes when burned. Often referred to as No.2 Plastic.
HE	High Explosive(s)	an explosive capable of detonating, such as TNT
HEA	Health Effects Assessment	An evaluation of available data on existing or potential risks to human health posed by a Superfund site. The Agency for Toxic Substances and Disease Registry (ATSDR) of the Department of Health and Human Services (DHHS) is required to perform such an assessment at every site on the National Priorities List.
HEAST	Health Effects Assessment Summary Tables	A tabular presentation of toxicity information and values for chemicals that is updated quarterly. It summarizes interim and verified RfDs and slope factors as well as other toxicity information for specific chemicals. It contains the most current sources of supporting toxicity information for chemicals that cannot be found in the IRIS.
Heptachlor	Heptachlor	An insecticide that was banned on some food products in 1975 and all food products in 1978. It was allowed for use in seed treatment until 1983. More recently it was found in milk and other dairy products in Arkansas and Missouri where dairy cattle were illegally fed treated seed.
Hg	Mercury	Exists as a silvery, heavy liquid or as a heavy metal. It forms various insoluble salts and complex compounds with organic and inorganic chemicals. It is used for amalgams, catalysts, electrical apparatuses, instruments such as thermometers and barometers, and in nuclear power plants. Mercury released to the environment will remain indefinitely. It does not biodegrade but can be biotransformed into various different states. Its solubility and state depends heavily on the pH and redox state of the local environment. The toxicity, mobility, solubility and other properties depend upon the state the mercury is in, for example whether it forms an insoluble salt with another element or whether it has formed a complex organometallic compound like methyl mercury, which is the most hazardous and stable state of mercury. Bioaccumulation is a major concern. See Heavy Metals.
HHEM	Human Health Evaluation Manual	The baseline risk assessment is an analysis of the potential adverse health effects (current or future)

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		caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases (i.e., under an assumption of no action). The baseline risk assessment contributes to the site characterization and subsequent development, evaluation, and selection of appropriate response alternatives. The results of the baseline risk assessment are used to help determine whether additional response action is necessary at the site, modify preliminary remediation goals, help support selection of the "no-action" remedial alternative, where appropriate, and document the magnitude of risk at a site, and the primary causes of that risk.
HHRA	Human Health Risk Assessment	The three-tiered process used to determine potential risks to humans exposed to environmental contaminants. The three tiers are Tier 1 Risk-Based Screening; Tier 2 Baseline Risk Assessment (BRA); and Tier 3 Risk Evaluation of Remedial Alternatives (RERA).
HHS	Department of Health and Human Services	The Department of Health and Human Services is the United States government's principal agency for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves.
HHS	Housing and Human Services	works to build a stronger and healthier community through a range of comprehensive services that address the needs of City residents and facilitate community development.
HI	Hazard Index	The sum of more than one Hazard Quotient for multiple substances and/or multiple exposure pathways. The HI is calculated separately for chronic, subchronic and shorter-duration exposures. The HI indicates the risk from the presence of multiple substances at one site, or exposures to the same chemicals through multiple media and pathways.
HIT	Hazard Index, Total	Sum of media specific Hazard Quotients for non-carcinogens.
HM/HW C&M	Hazardous Material/Hazardous Waste Control and Management	as defined in OPNAINST 4110.2, OPNAVINST 5100.23 and OPNAVINST 5100.19 which defines hazardous material control and management; wherein the objectives are to minimize the amount of hazardous materials in use; use hazardous materials safely; and decrease the amount of hazardous waste produced.
HMIS	Hazardous Materials Information System	A computerized database of Material Safety Data Sheets (MSDSs). It provides information for people working in hazardous material management. The system provides basic technical information required for all levels of hazardous materials to aid in their proper handling, storage, transportation, and disposal; provides information about safety, health, and environmental functions.
HMTA	Hazardous Material Transportation Act	The major transportation-related statute affecting DOE. The objective of the HMTA according to the policy stated by Congress is ". . .to improve the regulatory and enforcement authority of the Secretary of Transportation to protect the Nation adequately against risks to life and

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		property which are inherent in the transportation of hazardous materials in commerce." The HMTA empowered the Secretary of Transportation to designate as hazardous material any "particular quantity or form" of a material that "may pose an unreasonable risk to health and safety or property."
HMTR	Hazardous Materials Transportation Regulations	prescribes requirements for: (1) The offering of hazardous materials for transportation and transportation of hazardous materials in interstate, intrastate, and foreign commerce by rail car, aircraft, motor vehicle, and vessel (except as delegated at § 1.46(t) of this title); (2) the representation that a hazardous material is present in a package, container, rail car, aircraft, motor vehicle, or vessel; (3) The manufacture, fabrication, marking, maintenance, reconditioning, repairing, or testing of a packaging or container which is represented, marked, certified, or sold for use in transportation of hazardous materials; (4) The use of terms and symbols prescribed in this subchapter for the marking, labeling, placarding and description of hazardous materials and packagings used in their transport.
HMTUSA	Hazardous Material Transportation Uniform Safety Act	requires training in hazardous material recognition and identification.
HMX	High Melting (or His Majesty's) Explosive	Cyclotetramethylene-tetranitramine, a powerful military explosive material.
HNTS	Hydrocarbon National Test Site	located at Naval Construction Battalion Center, Port Hueneme, California; serves as the demonstration site for various innovative environmental technologies.
HPLC	High Performance Liquid Chromatography	An analytical technique used for separation of low-to-moderate molecular weight compounds of resins. The instrumentation for HPLC and size exclusion (SEC) or gel-permeation chromatography are similar, but the columns differ.
HPO	Hydrous Pyrolysis Oxidation	utilizes the heating large volumes of soil and groundwater for the in situ destruction of volatile organic compounds (VOCs). Steam and oxygen are injected together, building a heated oxygenated zone in the subsurface. When injection is halted, steam condenses and contaminated groundwater returns to the heated zone. The contaminated groundwater then mixes with the heated condensate and oxygen, destroying the dissolved contaminants.
HQ	Hazard Quotient	The ratio of a single substance exposure level over a specified time period to a reference dose for that substance derived from a similar exposure period. Indicates the hazard or risk from exposure to that substance.
HQ	Headquarters	the military installation from which a commander performs the functions of command.
HRA	Historical Radiological Assessment	Provides a "snapshot" of the radiological conditions at an installation. HRAs are used as the baseline document for determining the type and extent of radiological investigation at an installation.

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HRS	Hazardous Ranking System	The principle screening tool used by EPA to evaluate risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. The HRS calculates a score based on the potential of hazardous substances spreading from the site through the air, surface water, or groundwater, and on other factors such as density and proximity of human population. This score is the primary factor in deciding if the site should be on the National Priorities List and, if so, what ranking it should have compared to other sites on the list.
HRS2	Hazardous Ranking System, Revised	The method used by EPA to evaluate the relative potential of hazardous substance releases to cause health or safety problems, or ecological or environmental damage. It is the primary mechanism used by EPA to place sites on the NPL. The EPA bases the score on evaluation of three contaminant migration pathways. A score of 28.50 or above will require the site to be placed on the NPL. The score is based on such factors as amount and toxicity of contaminants, potential mobility, pathways for human exposure and proximity of population centers. EPA issued the HRS in 1990, and it became effective in March 1991. The revised HRS (HRS 2) incorporates SARA requirements and improvements identified by EPA and the public including an assessment of ecological effects.
HS	Hazardous Substance	1) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. 2) Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or if otherwise released into the environment.
HS	Hydrogen Sulfide	Gas emitted during organic decomposition. Also a byproduct of oil refining and burning. Smells like rotten eggs and, in heavy concentration, can kill or cause illness.
HSL	Hazardous Substance List	A list of hazardous substances that are subject to the state hazardous substance tax as defined by the Model Toxics Control Act; in general terms, petroleum products, pesticide products, and chemicals.
HSM	Health and Safety Manager	Personnel responsible for ensuring that matters relating to health and safety standards, processes and procedures, facilities, arrangements for staff welfare at work, their maintenance and improvement are implemented.
HSWA	Hazardous and Solid Waste Act Amendments (to RCRA)	These amendments modified and strengthened the 1965 Solid Waste Disposal Act and the 1976 RCRA Act to control the management and disposal of both non-hazardous and hazardous wastes.
HTW	Hazardous and Toxic Waste	A solid waste that is either "listed" under 40 CFR Part 261 or is a "characteristic" hazardous waste under RCRA due to its ignitability, corrosivity, reactivity or toxicity. RCRA, as amended by the Solid Waste

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		Disposal Act of 1980, defines this term as a $\zeta$ solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. $\zeta$
HVAC	Heating, Ventilation, and Air Conditioning (System)	The system of pipes, ducts and equipment (air conditioners, chillers, heaters, boilers, pumps, fans) used to heat, cool, move and filter air in a building. HVAC systems are also known as mechanical systems.
HW	Hazardous Waste	1) A solid waste or combination of solid wastes which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: A) Cause or contribute to an increase in mortality or to a serious, irreversible, or incapacitating reversible illness; or B) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. Hazardous wastes may be listed (named on a list within a regulation) or characteristic (exhibits one of the four characteristics: corrosive, toxic, ignitable or reactive). 2) By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed.

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	habitat	The place where a population (e.g., human, animal, plant, microorganism) lives, and its surroundings, both living and non-living.
	habitat indicator	A physical attribute of the environment measured to characterize conditions necessary to support an organism, population, or community in the absence of pollutants, e.g., salinity of estuarine waters or substrate type in streams or lakes.
	half-life	(physical, biological or effective) -1) The time for a quantity of material/chemical to diminish by a factor of half (because of nuclear decay events, biological elimination of the material, or both). The greater the half-life, the more persistent a material/chemical is likely to be. For example, the biochemical half-life of DDT in the environment is 15 years, Radium is 1,580 years. 2) The time required for half of the atoms of a radioactive element to undergo self-transmutation or decay. 3) The time required for the elimination of one half a total dose from the body.
	halogen	Any of a group of five chemically-related, nonmetallic elements that includes bromine, fluorine, chlorine, iodine, and astatine. Can combine with metals to form

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		salts or substitute for hydrogen in many organic compounds. The resultant halogenated compound is generally less flammable but more toxic.
	halogenated	Organic compounds containing one or more halogens substituted for hydrogen. The resulting substituted compound is generally less flammable but more toxic.
	Halon	Bromine-containing compounds with long atmospheric lifetimes whose breakdown in the stratosphere causes depletion of ozone. Halons are used in fire-fighting.
	hand auger drilling	Hand drilling by rotating a spiral channel supported on a shaft.
	hardness	Characteristic of alkaline water caused by the presence of various salts. Hard water may interfere with some industrial processes and prevent soap from lathering.
	hauler	Waste collection company that offers refuse or waste removal service; many will also collect recyclables.
	hazard communication standard	An OSHA regulation that requires chemical manufacturers, suppliers, and importers to assess the hazards of the chemicals that they make, supply, or import, and to inform employers, customers, and workers of these hazards through Material Safety Data Sheets.
	hazard evaluation	A component of risk evaluation that involves gathering and evaluating data on the types of health injury or disease that may be produced by a chemical and on the conditions of exposure under which such health effects are produced.
	hazard identification	Determining if a chemical can cause adverse health effects in humans and what those effects might be.
	hazardous chemical	An EPA designation for any hazardous material requiring an MSDS under OSHA's Hazard Communication Standard. Such substances are capable of producing fires and explosions or adverse health effects like cancer and dermatitis. Hazardous chemicals are distinct from hazardous waste. See Hazardous Waste.
	hazardous waste landfill	An excavated or engineered site where hazardous waste is deposited and covered.
	hazards analysis	Procedures used to 1) identify potential sources of released hazardous materials from fixed facilities or transportation accidents; 2) determine the vulnerability of a geographical area to a release of hazardous materials; and 3) compare hazards to determine which present greater or lesser risks to a community.
	hazards identification	Providing information on which facilities have extremely hazardous substances, what those chemicals are, how much there is at each facility, how the chemicals are stored, and whether they are used at high temperatures.
	head	1) The elevation of the groundwater table above a specified point. 2) The height above a standard reference (datum) of the surface of a column of water or other liquid. Head is the sum of three components at a point: a) Elevation head, which is equal to the elevation

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		of the point above a datum, b) Pressure head, which is the height of a column of static water that can be supported by static pressure at the point, and c) Velocity head, which is the height the kinetic energy of the liquid is capable of lifting the liquid.
	health advisory level	A non-regulatory health-based reference level of chemical traces (usually in ppm) in drinking water at which there are no adverse health risks when ingested over various periods of time. Such levels are established for one day, 10 days, long term and life-time exposure periods. They contain a large margin of safety.
	health assessment	An evaluation of available data on existing or potential risks to human health posed by a Superfund site. The Agency for Toxic Substances and Disease Registry (ATSDR) of the Department of Health and Human Services (DHHS) is required to perform such an assessment at every site on the National Priorities List.
	health based cleanup goal	A media-specific contaminant concentration derived from the risk assessment process; used as the goal for cleanup.
	health hazard	A chemical, mixture of chemicals or a pathogen for which there is statistically significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic effects may occur in exposed personnel.
	health impacts	Calculated numeric values that express, in quantified terms, the effect on human receptors of exposure to contaminants present in a given environment. Two common kinds of health impacts are risk values (such as RBSLs) and hazard quotients.
	heat exhaustion (heat prostration)	A mild form of shock caused when the circulatory system begins to fail as a result of the body's inadequate effort to give off excessive heat.
	heatstroke	A severe and sometimes fatal condition resulting from the failure of the temperature-regulating capacity of the body. It is caused by prolonged exposure to the sun or high temperatures. Reduction or cessation of sweating is an early symptom. Body temperatures of 105°F or higher, rapid pulse, hot and dry skin, headache, confusion, unconsciousness, and convulsions may occur. Heatstroke is a TRUE MEDICAL EMERGENCY, requiring immediate transport to a medical facility.
	heavy metals	Metallic elements with high atomic weights that can damage living things at low concentrations and tend to accumulate in the food chain, e.g., mercury, chromium, cadmium, arsenic, and lead.
	hematite	The mineral form of ferric oxide (Fe <sub>2</sub> O <sub>3</sub> ).
	herbicide	A chemical pesticide designed to control or destroy plants, weeds, or grasses.
	herbivore	An animal that feeds on plants.
	heterogeneous	Pertaining to a substance having different characteristics in different locations. Non-uniform. For example, sand with intermittent clay lenses. Antonym

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	heterotrophic organisms	Consumers such as humans and animals, and decomposers such as bacteria and fungi, that are dependent on organic matter for food.
	high-to-low dose extrapolation	Prediction of low exposure risk to humans from the measured high exposure, high risk data involving rodents.
	histogram	A graphic display of the distribution of items (e.g., chemicals) in a given population or sample.
	holding pond	A pond or reservoir, usually made of earth, built to store runoff.
	holding time	The elapsed time expressed in days from the date of receipt of the sample by the contractor until the date of its analysis.
	hollow stem auger	Center of auger is hollow like a straw when the inner drive rods and plug are removed. During drilling or formation cutting, the center is filled with rods connected to a plug at the bottom bit. Once the desired drilling depth is reached, the center plug and rods can be pulled out - leaving the hollow augers in place. The hollow augers hold the borehole open for sediment sampling and well installation.
	homogeneous	Pertaining to a substance having uniform characteristics throughout. Uniform. Antonym - Heterogeneous.
	hot zone	See Exclusion Zone.
	household waste (domestic waste)	Solid waste, composed of garbage and rubbish, which normally originated in a private home or apartment house. Domestic waste may contain a significant amount of toxic or hazardous waste.
	human equivalent dose	A dose which, when administered to humans, produces an effect equal to that produced by a dose in animals.
	human exposure evaluation	Describing the nature and size of the population exposed to a substance and the magnitude and duration of their exposure. The evaluation could concern past, current, or anticipated exposures.
	human health risk	The likelihood that a given exposure or series of exposures may have or will damage the health of individuals.
	Hunter's Point	Hunters Point Naval Shipyard was located south of San Francisco facing San Francisco Bay and closed in 1974. Environmental cleanup is ongoing today.
	Hydra-Sleeve	A cylindrical, flexible polyethylene bag with a polyethylene check ball at the top. An upper check valve opens and water moves into the flexible chamber at the selected depth, expanding it until full.
	hydraulic	Operated by or involving the pressure of water or some other liquid.
	hydraulic capture	Capture of a certain volume of groundwater in an aquifer using hydraulic means, such as extraction wells.
	hydraulic fracturing	A permeable reactive barrier placement method that involves the installation of a series of wells along the length of the proposed barrier and propagation of a controlled vertical fracture through each well. The fracture is initiated through the use of a specially

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		designed, down hole tool or frac tool, which cuts a vertical notch in the subsurface. The fracture is then propagated and filled with granular iron suspended in a hydrated guar-based slurry. The emplaced material in one frac well coalesces with the emplaced material in the adjacent frac well, thus forming a continuous vertical wall.
	hydraulic gradient	The gradient or slope of the water table, or of the potentiometric surface, in the direction of the greatest slope, generally expressed in feet per mile.
	hydric soil	Soil containing considerable moisture.
	hydrogen peroxide/ultraviolet irradiation	A process that uses hydrogen peroxide (H <sub>2</sub> O <sub>2</sub> ) in solution in combination with ultraviolet (UV) light irradiation to disinfect water or chemically oxidize organic contaminants.
	hydrogenolysis	A reductive reaction in which a carbon-halogen bond is broken, and hydrogen replaces the halogen substituent.
	hydrogeologic cycle	The natural processes recycling water from the atmosphere down to (and through) the earth and back to the atmosphere again.
	hydrogeology	The geology of groundwater, and related geological aspects of surface water, with particular emphasis on the chemistry and movement of water.
	hydrologic cycle	Movement or exchange of water between the atmosphere and the earth.
	hydrology	The science that deals with the properties of the waters of the earth, their distribution on the surface and underground, and the circulation cycles involving evaporation, precipitation, flow, etc.
	hydrometallurgical processing	A remediation process that combines chemical leaching and leachant regeneration, and typically includes one or more of the following four steps: dissolution of the desired metal; purification and/or concentration of the metal; recovery of the metal or a metal salt; and regeneration of the leaching solution
	hydrometer	An instrument for determining specific gravity. It can also be used as a grain size test, because grain size distribution affects the specific gravity of fluids according to the distribution present.
	hydrophilic	"Water-liking"; having a strong affinity for water. Substances that can interact favorably with polar water molecules.
	hydrophobic	"Water-fearing"; having a strong aversion for water. Substances that tend not to dissolve in water.
	hydropneumatic	A water system, usually small, in which a water pump is automatically controlled by the air pressure in a compressed air tank.
	hydroxyl	monovalent molecule consisting of one hydrogen and one oxygen atom (OH-).
	hydroxyl radical	a hydroxyl ion with an unpaired electron.