

FUSRAP ACRONYMS and GLOSSARY

This glossary has been prepared as part of the effort to familiarize the public with the specific vocabulary and acronyms used in discussions about the Corps' Formerly Utilized Sites Remedial Action Program.

AEC – Atomic Energy Commission. A Federal agency created in 1946 to manage the development, use and control of nuclear energy for military and civilian application. It was abolished by the Energy Reorganization Act of 1974 and succeeded by the Energy Research and Development Administration (now part of the U.S. Department of Energy and the Nuclear Regulatory Commission).

aquifer - A permeable body of rock capable of yielding quantities of groundwater to wells and springs. See also groundwater.

ARF - administrative record file. A required, publicly available comprehensive file of documents that forms the basis of decisions made regarding cleanup.

ARARs - applicable or relevant and appropriate requirements. A comprehensive set of laws and regulations that are relevant to guide the selection of cleanup activity at a particular site.

ATSDR – Agency for Toxic Substances and Disease Registry (sister agency of the U.S. Centers for Disease Control and Prevention)

baseline risk assessment - See BRA

BRA - baseline risk assessment. A baseline risk assessment is an analysis that uses information about toxic substances at a site to estimate a theoretical level of risk for people who might be exposed to these substances. The information comes from scientific studies and environmental data from a site. The BRA provides a scientific estimate of risk to persons who could be exposed to hazardous materials present at a site, and helps to determine if any remedial action is needed in order to ensure protection of human health and the environment. See also risk assessment.

carcinogen – A chemical, or complex mixture of closely related chemicals—also known to be a cancer-causing agent.

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund). The federal law that guides cleanup of hazardous waste sites.

CFR - Code of Federal Regulations characterization - Facility or site sampling, monitoring and analysis activities to determine the extent and nature of a release.

cleanup - The general term for environmental restoration, the process designed to ensure that risks to the environment and to human health and safety from waste sites are either eliminated or reduced to prescribed, safe levels.

closure plan - Documentation prepared to guide the deactivation, stabilization and surveillance of a waste management unit or facility under the Resource Conservation and Recovery Act.

concentration – The amount of a substance contained in a unit volume or mass of a sample.

contaminant – Any solid, liquid, or gaseous matter, any odor, or any form of energy, from whatever source.

contamination - The presence of foreign materials, chemicals or radioactive substances in the environment (soil, sediment, water or air) in significant concentrations.

comment period - Time provided for the public to review and comment formally on a proposed action or decision.

community relations - The effort to establish two-way communication with the public to ensure public input into the decision-making process related to Superfund or other environmental restoration programs.

cosmic radiation – Ionizing radiation with very high energies, originating outside the earth's atmosphere. Cosmic radiation is one source contributing to natural background radiation.

curie (Ci) — A unit of radioactivity. One curie is defined as 3.7×10^{10} (37 billion) disintegrations per second. Several fractions and multiples of the curie are commonly used:

kilocurie (kCi) — 10^3 Ci, one thousand curies; 3.7×10^{13} disintegrations per second.

millicurie (mCi) — 10^{-3} Ci, one-thousandth of a curie; 3.7×10^7 disintegrations per second.

microcurie (Ci) — 10^{-6} Ci, one-millionth of a curie; 3.7×10^4 disintegrations per second.

picocurie (pCi) — 10^{-12} Ci, one-trillionth of a curie; 0.037 disintegrations per second.

daughter - A nuclide formed by the radioactive decay of a parent nuclide.

decay, radioactive - The spontaneous transformation of one radionuclide into a different radioactive or non-radioactive nuclide, or into a different energy state of the same radionuclide.

DEC – Department of Environmental Conservation, State of New York

detection - the ability of an instrument to sense a specific amount or quantity of a liquid, gas, or element in the local air, ground, or water. (*see also non-detect*)

DOD – U. S. Department of Defense

DOE - U.S. Department of Energy

DOH – Department of Health

dose – The energy imparted to matter by ionizing radiation. The unit of absorbed dose is the rad.

dosimeter – A portable detection device for measuring the total accumulated exposure to ionizing radiation.

drinking water standards – Federal primary drinking water standards, both proposed and final, set forth by USEPA. See also MCL.

effluent – A liquid or gaseous waste discharge to the environment.

effluent monitoring - The collection and analysis of samples or measurements of liquid and gaseous effluents for purposes of characterizing and quantifying the release of contaminants, assessing radiation exposures of members of the public, and demonstrating compliance with applicable standards.

environmental restoration - The process of environmental cleanup designed to ensure that risks to the environment and to human health and safety from waste sites either are eliminated or reduced to prescribed, safe levels.

EPA – see USEPA

exposure assessment - People must come in contact with the contamination to be at risk. The exposure assessment is performed to identify the affected population, and calculate the amount, frequency, length of time, and route of exposure.

exposure pathway – The ways in which a person may come into contact with a contaminant. These include inhalation, ingestion, absorption through the skin, and external gamma emissions (for exposure to radionuclides).

exposure (radiation) - The incidence of radiation on living or inanimate material by accident or intent. Background exposure is the exposure to natural background ionizing radiation. Occupational exposure is that exposure to ionizing radiation that takes place during a person's working hours. Population exposure is the exposure to the total number of persons who inhabit an area.

external radiation - Exposure to ionizing radiation when the radiation source is located outside the body.

FR -- Federal Register

FS - feasibility study. The CERCLA study following a remedial investigation which identifies, develops, evaluates and selects remedial action alternatives.

FUSRAP - Formerly Utilized Sites Remedial Action Program. A program created in 1974 to study sites used during World War II through the '50s as part of the Nation's atomic energy program. These early sites were de-contaminated under guidelines in effect during that period. Using today's more-stringent environmental laws and better technology, the Corps of Engineers is working to investigate, and, if needed, restore these environmentally damaged sites.

gamma spectrometry - A system consisting of a detector, associated electronics, and a multi-channel analyzer that is used to analyze samples for gamma-emitting radionuclides.

groundwater - Water beneath the earth's surface that fills pores between materials such as sand, soil or gravel. Groundwater is a major source of water for agricultural and industrial purposes and, though groundwater is not the source of drinking water in Western NY, in some areas of the U.S., groundwater is an important source of drinking water.

half-life, radiological - The time required for half of a given number of atoms of a specific radionuclide to decay. Each nuclide has a unique half-life.

hazardous waste - A solid waste or combination of solid wastes that, because of quantity, concentration or physical, chemical or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness or pose a substantial hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed.

hydrogeologic - Pertaining to groundwater and its movement through the geologic environment.

hydrogeology - The science of how geology and groundwater interact.

in situ - In its original place; field measurements taken without removing the sample from its origin; remediation performed while groundwater remains below the surface.

internal dose factor — A factor used to convert intakes of radionuclides to dose equivalents.

internal radiation - Internal radiation occurs when natural radionuclides enter the body by ingestion of foods, milk, and water, and by inhalation. Radon is the major contributor to the annual dose equivalent for internal radionuclides.

isotopes - Forms of an element having the same number of protons in their nuclei but differing in the number of neutrons.

maximally exposed individual - A hypothetical individual who (according to the NRC) remains in an uncontrolled area and would, when all potential routes of exposure from a facility's operations are considered, receive the greatest possible dose equivalent.

leachate - The solution formed when soluble components have been removed from a material.

leaching - To remove a soluble substance from a material by dissolving it in a liquid, and then removing the liquid from what is left.

MCL - The Maximum Contaminant Level (MCL) is the maximum concentration of a chemical that is allowed in public drinking water systems. The MCL is established by the U.S. Environmental Protection Agency (EPA).

MED – Manhattan Engineer District, U.S. Army Corps of Engineers.

migration - The transfer or movement of a material through the air, soil, or groundwater.

mobility - The ability of a contaminant to move through food chains and different media (soil, water, air) in the environment.

monitoring - Process whereby the quantity and quality of factors that can affect the environment and/or human health are measured periodically in order to regulate and control potential impacts.

monitoring well - A hole drilled into the ground with a pipe inserted and filtering material added to allow for the collection of groundwater samples.

natural radiation - Radiation that is always present in the environment from such sources as cosmic rays and radioactive materials in rocks and soils. Also known as **background radiation**.

NCP - National Oil and Hazardous Substances Pollution Contingency Plan, which implements CERCLA.

NRC - The U.S. Nuclear Regulatory Commission (NRC) was created as an independent agency by Congress in 1974 to enable the nation to safely use radioactive materials for beneficial civilian purposes while ensuring that people and the environment are protected. The NRC regulates commercial nuclear power plants and other uses of nuclear materials, such as in nuclear medicine, through licensing, inspection and enforcement of its requirements.

non-detect - The testing method is unable to measure an amount below the instrument's detection limit; it does not mean a zero concentration.

NYSDEC - see DEC

OU - operable unit

PA - see preliminary assessment.

pathways - The means by which contaminants move. Possible pathways include air, surface water, groundwater, plants and animals.

PM - program or project manager

potable - Meaning generally fit for human consumption in accordance with accepted water supply principles and practices.

PP - proposed plan. A CERCLA document on which the public comments that summarizes what cleanup remedy has been selected, and why.

preliminary assessment - The review of existing information and an on-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action.

PRP - potentially responsible party

quality assurance (QA) - Any action in environmental monitoring to ensure the reliability of monitoring and measurement data.

quality control (QC) - The routine application of procedures within environmental monitoring to obtain the required standards of performance in monitoring and measurement processes.

RA - risk assessment (also see BRA). The process of estimating exposure to and toxicity of a contaminant in order to determine whether or not adverse effects to human health or the environment could occur.

release - Any discharge to the environment. Environment is broadly defined as any water, land, or ambient air.

remedial action - Long-term environmental restoration/cleanup activities.

remedial design - A phase of remedial action that follows the remedial investigation/feasibility study and includes development of engineering drawings and specifications for a site cleanup.

remediation - Those activities performed to remove or treat hazardous waste sites or to relieve their effects.

removal action - Interim cleanup activities that are identified as needed to protect public health and the environment.

responsiveness summary - A document presenting formal comments received during the public comment period and responses to the comments. It becomes part of the ROD.

restoration -- See **environmental restoration**

RI - remedial investigation. The CERCLA process of determining the extent of hazardous substance contamination and, as appropriate, conducting treatability investigations.

RI/FS – remedial investigation/feasibility Study. Two distinct, but related studies. Together, they characterize environmental problems and outline remedial actions to solve those problems.

Risk assessment -- See **RA**

ROD - record of decision. A written, legally-binding decision that identifies the selected method for long-term cleanup of contamination at a site.

SARA - The Superfund Amendments and Reauthorization Act (SARA) amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) on October 17, 1986. SARA reflected EPA's experience in administering the complex Superfund program during its first six years and made several important changes and additions to the program.

SI – site inspection/investigation (see site inspection/investigation)

site – Meaning any location, place, tract of land and facilities, including but not limited to, buildings and improvements used for the purposes subject to regulation or control by the act or regulations thereunder.

site inspection/investigation – Meaning an on-site inspection/investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate.

split sample – A sample that has been portioned into two or more containers from a single sample container. Many times this is done so that a regulatory agency can have the sample analyzed at a different laboratory, enabling comparison and data-sharing.

storm water runoff – Surface streams that appear after precipitation.

Superfund - The program operated under the legislative authority of CERCLA and SARA that funds and carries out the 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.

surface water – All water on the surface of the earth, as distinguished from groundwater.

toxic - Relating to a harmful effect by a poisonous substance on the human body.

toxicity assessment -

Determination made by EPA in order to identify what adverse health effects a chemical causes and how the appearance of these adverse effects depends on exposure level.

toxicology - The science that deals with poisons and their effects on plant, animal and human life.

USACE – The **United States Army Corps of Engineers**, (commonly referred to as "the Corps,") is the Federal agency that manages the Formerly Utilized Sites Remedial Action Program (*see FUSRAP*). USACE, like the USEPA under the Superfund Program, uses the CERCLA process to investigate and remediate sites under its purview.

USEPA - **United States Environmental Protection Agency**, sometimes referred to as EPA.

VOCs - volatile organic compounds, chemicals that contain carbon and commonly also contain hydrogen, oxygen and other elements. The prefix "volatile" means that the compound evaporates readily. Most industrial solvents are volatile and are found in some liquid and air waste releases.

For More Information....

To get more information about Corps' FUSRAP projects or to be added to the Program's mailing list, contact:

U.S. Army Corps of Engineers
Public Affairs Office
1776 Niagara Street
Buffalo, NY 14207-3199
(716) 879-4396

You may also call the toll-free telephone number: 1-800-833-6390, then press "0"

The USACE-Buffalo District Web page addresses are:
<http://www.lrb.usace.army.mil/fusrap/index.htm>

Concentration Comparisons

Parts per million:

- One automobile in bumper-to-bumper traffic from Cleveland to San Francisco
- One drop of gasoline in a full-size car's tank full of gas
- One facial tissue in a stack taller than the Empire State Building
- One pancake in a stack 4 miles high

Parts per billion:

- One silver dollar in a roll of silver dollars stretching from Detroit to Salt Lake City
- One kernel of corn in enough corn to fill a 45 foot-silo, 16 feet in diameter
- One sheet in a roll of toilet paper stretching from New York to London

Parts per trillion:

- One square foot of floor tile on a kitchen floor the size of Indiana
- One drop of detergent in enough dishwater to fill a train load of railroad tank cars 10 miles long
- One mile on a two-month journey at the speed of light