

# Environmental Glossary

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## A

alpha particle:

A positively charged particle emitted by some radioactive materials undergoing radioactive decay.

## B

beta particle:

An electron emitted from the nucleus during radioactive decay.

Bq ([becquerel](#)):

The international System (SI) unit of activity equal to one nuclear transformation (disintegration) per second.  $1 \text{ Bq} = 2.7 \times 10^{11} \text{ Curies (Ci)} = 27.03 \text{ Pico curies (pCi)}$ .

## C

[CERCLA](#):

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

For more information see: [U.S. EPA](#) or: [Department of Energy](#)

Characterization Survey:

A type of survey that includes facility or site sampling, monitoring, and analysis activities to determine the extent and nature of contamination. Characterization surveys provide the basis for acquiring necessary technical information to develop, analyze, and select appropriate cleanup techniques.

### Ci (curie):

The customary unit of radioactivity. One curie (Ci) is equal to 37 billion disintegrations per second ( $3.7 \times 10^{10}$  Bq), which is approximately equal to the decay of one gram of  $^{226}\text{Ra}$ . Fractions of a curie, e.g. Pico curie (pCi) or  $10^{12}$  Ci and micro curie (Ci) or  $10^6$  Ci, are levels typically encountered in decommissioning.

## D

### Decontamination and Decommissioning (D&D):

When DOE declares a facility as surplus it is shut down and prepared for decontamination and decommissioning, or D&D. The process is the safe decontamination, dismantling, removal of contamination and structures, and/or the release for reuse, facilities that are no longer active.

For more information see: [DOE's Environmental Management Program](#)

### Detection Limit (DL):

The detection limit is the lowest level of a chemical that can be distinguished from the normal noise of an analytical instrument or method.

### Dose Calculation:

The process of estimating the radiation absorbed.

## E

No Listings

# F

## FS:

Feasibility Study. The FS is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions.

For more information see: [U.S. EPA](#)

## FUSRAP:

Formerly Utilized Site Remedial Action Program (FUSRAP)

Nuclear weapons were developed during World War II. For protection, the nation's weapons production facilities were built in remote areas across the country. Also, during and after the war, the government contracted with universities and private companies to research and produce certain items because it was both faster and cheaper than building new government factories or laboratories. Many of these sites are now being cleaned up by FUSRAP.

The FY 1998 Energy and Water Appropriations Bill, transferred management of FUSRAP from the [U.S. Department of Energy](#) to the [U.S. Army Corps of Engineers](#) (USACE). The bill was signed into law on October 13, 1997.

# G

## geosynthetic clay liner (GCL):

The GCL generally provides a hydraulic conductivity of less than  $1 \times 10^{-7}$  cm/sec required for clay caps and liners. GCL liners are successfully used in a variety of environmental designs such as landfill caps and liners, tank farms, industrial lagoons, and mining applications. GCL's are comprised of a granular sodium bentonite layer encapsulated between two geotextiles, woven or non-woven depending on the needed strength. These liners are bonded together by either glue (non-reinforced) or a process called needlepunching. In the field, the GCL is placed dehydrated (moisture content of approximately 20%) and covered with compacted soil. When the GCL becomes hydrated, it swells and exerts pressure on the confining layers. The swollen bentonite becomes a barrier with very low hydraulic conductivity. The hydration occurs spontaneously either from a leachate entering through a hole in the over-lying geomembrane liner or from scavenging water from the compacted clay liner below.

# H

## Historical Site Assessment:

A detailed investigation to collect existing information primarily historical information, on a site and its surroundings.

# I

## Impacted Area:

Area with some potential for residual contamination.

## ITRD:

The Innovative Treatment Remediation Demonstration (ITRD) Program is funded by the DOE Office of Environmental Restoration (EM-40) to help accelerate the adoption and implementation of new and innovative remediation technologies.

For more information see: [Department of Energy](#)

# J

No Listings

# K

No Listings

# L

No Listings

# M

Media:

Specific environments--air, water and soil--which are the subject of regulatory concern and activities.

# N

NCP:

National Contingency Plan.

NOAEL:

No observable adverse effect level.

NPL:

National Priorities List.

# O

No Listings

# P

PAH:

polycyclic aromatic hydrocarbon \ Pronounced pol'ee syk'lik ar'o mat'ik hi'dro kar'benz \

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

For More Information see: [Agency for Toxic Substances and Disease Registry](#)

**Parameter:**

The radiological or hazardous contaminant that is tested for in a sampling event (ie. total U, Ra-226, tritium).

**PA/SI:**

**Preliminary Assessment:** The process of collecting and reviewing available information about a known or suspected waste site or release / **Site Inspection:** The collection of information from a site to determine the extent and severity of hazards posed by the site. 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 to determine eligibility for NPL Site listing, and if a site presents an immediate threat requiring prompt removal.

**PCB:**

polychlorinated biphenyl.

For More Information see: [Agency for Toxic Substances and Disease Registry](#)

**pCi:**

Pico curies.

**pCi/L (Pico curies per liter):**

A unit of measurement for radioactivity. A Pico curie is equivalent to the radioactivity present in one trillionth of one gram of pure radium.

**PID (photoionization detector):**

The PID is used for the detection of volatile organic compounds (VOC's) such as benzene, toluene, etc.

**ppm:**

Parts per million.

# Q

## QA (Quality Assurance):

An integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected.

## QAPP (Quality Assurance Project Plan):

A formal document describing in comprehensive detail the necessary QA, QC , and other technical activities that must be implemented to ensure that the results of the work performed satisfies the stated performance criteria.

## QC (Quality Control ):

The overall system of technical activities that measure the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirement established. QC includes operational techniques and activities that are used to fulfill requirements for quality.

# R

## Radiological Survey:

Measurements of radiation levels associated with a site together with appropriate documentation and data evaluation.

## Radionuclide:

An unstable nuclide that undergoes radioactive decay.

## RfD:

Reference dose.

## RI (Remedial Investigation)::

Serves as the mechanism for collecting data to:

- characterize site conditions
- determine the nature of the waste
- assess risk to human health and the environment; and

- conduct treatability testing to evaluate the potential performance and cost of the treatment technologies that are being considered.

For more information see: [U.S. EPA](#)

#### RME:

Reasonable maximum exposure.

#### RSC:

Relative source contribution.

#### Remediation:

The process and associated activities resulting in removal of contamination from a site. Remediation is sometimes used interchangeably with the terms remedial action, response action, or decontamination.

Related Link: [The Federal Remediation Technologies Roundtable](#)

## S

#### Scoping Survey:

A type of survey that is conducted to identify (1) radionuclide contaminants, (2) relative radionuclide ratios, and (3) general levels and extent of contamination.

For more information see: [U.S. EPA](#)

#### SF:

Slope factor.

#### Split Sample:

A sample that is collected from a single location and then divided in half. One half is collected by OFFO and the other half by the site's Environmental Monitoring team. The two samples are sent to different labs and the results are compared. This is a quality control check of the lab's work.

# T

TCDD:

tetrachlorodibenzo-p-dioxin.

For more information see: [U.S. EPA](#)

TEF:

Toxicity equivalence factor.

TF:

Transfer factor.

# U

$\mu\text{g/L}$  (micrograms per liter):

A unit used to measure analytical results in concentrations which are equivalent to parts per billion (ppb).

UCL:

Upper confidence limit.

# V

V:

Velocity.

Vitrification:

A method of immobilizing waste by producing a glass-like solid that permanently captures the radioactive materials. This glassification process also significantly reduces the volume of materials requiring disposal.

**W**

No Listings

**X**

No Listings

**Y**

No Listings

**Z**

No Listings