

# **Appendix A**

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*Acronyms and Abbreviations,  
Glossary, and Metric Conversion Table*



## A-1.0 ACRONYMS AND ABBREVIATIONS

AOC	area of concern
B	Bioscience Division
bgs	below ground surface
BMP	best management practice
BV	background value
CMR	Chemistry and Metallurgical Research
COPC	chemical of potential concern
CST	Chemical Sciences and Technology
D&D	decontamination and decommissioning
DOE	Department of Energy (U.S.)
DP	Delta Prime
EM	Environmental Management Division
ENV-ERS	Environmental Remediation and Surveillance
EPA	Environmental Protection Agency (U.S.)
ER	Environmental Restoration (as in <i>former ER Project</i> )
FV	fallout value
gpm	gallon per minute
GPR	ground penetrating radar
HIR	historical investigation report
HRL	Health Research Laboratory
HSE	Health, Safety, and Environment Division
HSWA	Hazardous and Solid Waste Amendments
IA	interim action
ID	identification
LAMC	Los Alamos Medical Center
LANB	Los Alamos National Bank
LANL	Los Alamos National Laboratory
LASL	Los Alamos Scientific Laboratory
LS	Life Sciences
MCAL	mobile chemistry analytical laboratory
MDA	material disposal area
MRAL	mobile radiological analytical laboratory
NFA	no further action
NMED	New Mexico Environment Department

NMHW	New Mexico Hazardous Waste Act
NPDES	National Pollutant Discharge Elimination System
NOD	notice of deficiency
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PID	photoionization detector
QA/QC	quality assurance/quality control
QP	quality procedure
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RPF	Records Processing Facility
SOP	standard operating procedure
SVOC	semivolatile organic compound
SMO	Sample Management Office
SWMU	solid waste management unit
TA	technical area
TAL	target analyte
TSCA	Toxic Substance Control Act
UC	University of California
ULR	Unassigned Land Reserve
UST	underground storage tank
VCA	voluntary corrective action
VCP	vitrified clay pipe
VOC	volatile organic compound
WSWL	western sanitary waste line

## A-2.0 GLOSSARY

**accelerated corrective action**—A cleanup process used to implement presumptive remedies at small-scale and relatively simple sites where groundwater contamination is not a component of the accelerated cleanup, where the remedy is considered to be the final remedy for the site, and where the fieldwork will be accomplished within 180 days of the start of field activities. Accelerated corrective actions may be implemented before the approval of the accelerated corrective action work plan by the New Mexico Environment Department.

**accelerated corrective measure**—A cleanup process meeting the same criteria as an accelerated corrective action, except that an accelerated corrective measure cannot be implemented before New Mexico Environment Department approval of the accelerated corrective measure work plan.

**accuracy**—A measure of the closeness of measurements to the true value of the parameter being measured.

**action level**—(1) A numerical value that has been established by statistical analysis or has been set according to regulatory limits and is used as a criterion for action. Contamination found in a particular medium below an appropriate action level is not generally subject to remediation or further study.  
(2) A health- and environment-based concentration derived using chemical-specific toxicity information and standardized exposure assumptions. An action level can be developed on a facility-specific basis or can be taken from standardized lists.

**administrative authority**—For Los Alamos National Laboratory, one or more regulatory agencies, such as the New Mexico Environment Department, the U.S. Environmental Protection Agency, or the U.S. Department of Energy, as appropriate.

**administrative controls**—Nonphysical or nonengineered mechanisms for managing risks to human health and the environment.

**administrative order on consent**—A legal agreement signed by the U.S. Environmental Protection Agency and an individual, business, or other entity through which a violator agrees to pay for the correction of violations, take the required corrective or cleanup actions, or refrain from an activity. It describes the actions to be taken, may be subject to a comment period, applies to civil actions, and can be enforced in court.

**administrative record**—All documents that the administrative authority considered, or relied on, when selecting the response action at a site, culminating in the record of decision for remedial action or an action memorandum for removal actions.

**adverse condition**—An all-inclusive term used to reference failures, malfunctions, defective items, and nonconformances.

**aggregate**—At the Los Alamos National Laboratory, an area within a *watershed* containing solid waste management units (SWMUs) and/or areas of concern (AOCs), and the media affected or potentially affected by releases from those SWMUs and/or AOCs. Aggregates are designated to promote efficient and effective corrective action activities.

**alluvial**—Pertaining to geologic deposits or features formed by running water.

**alluvial fan**—A fan-shaped piedmont accumulation of alluvium.

**alluvium**—Soil deposited by a river or other running water.

**alpha radiation**—A form of particle radiation that is highly ionizing and has low penetration. Alpha radiation consists of two protons and two neutrons bound together into a particle that is identical to a helium nucleus and can be written as  $\text{He}^{2+}$ .

**analysis**—A critical evaluation, usually made by breaking a subject (either material or intellectual) down into its constituent parts, then describing the parts and their relationship to the whole. Analyses may include physical analysis, chemical analysis, toxicological analysis, and knowledge-of-process determinations.

**analyte**—The element, nuclide, or ion a chemical analysis seeks to identify and/or quantify; the chemical constituent of interest.

**analytical method**—A procedure or technique for systematically performing an activity.

**anthropogenic**—Of, relating to, or resulting from, the influence of human beings.

**Approved Supplier List**—A roster of suppliers who are approved and qualified to provide items or services to the Environmental Remediation and Surveillance Program.

**aquifer**—An underground geological formation (or group of formations) containing water that is the source of groundwater for wells and springs.

**aquitard**—Geological formation that may contain groundwater but is not capable of transmitting significant quantities of it under normal hydraulic gradients.

**area of concern**—(1) A release that may warrant investigation or remediation and is not a solid waste management unit (SWMU). (2) An area at Los Alamos National Laboratory that may have had a release of a hazardous waste or a hazardous constituent but is not a SWMU.

**area of contamination**—As defined by the U.S. Environmental Protection Agency, certain areas of generally dispersed contamination that could be equated to a Resource Conservation and Recovery Act (RCRA) landfill. The movement of hazardous wastes within those areas would not be considered land disposal and would not trigger RCRA land-disposal restrictions. An area of contamination may be designated by the Environmental Remediation and Surveillance Program as part of a corrective action for waste management purposes, subject to approval by the administrative authority.

**ash-flow tuff**—A tuff deposited by a hot, dense volcanic current. Ash-flow tuff can be either welded tuff or nonwelded tuff.

**as low as reasonably achievable (ALARA)**—(1) An approach to radiation protection for controlling or managing exposure (both individual and collective) to the work force and the general public. (2) An approach for controlling or managing releases of radioactive material to the environment at levels as low as social, technical, economic, practical, and public-policy considerations permit. ALARA is not a dose limit.

**assessment**—(1) The act of reviewing, inspecting, testing, checking, conducting surveillance, auditing, or otherwise determining and documenting whether items, processes, or services meet specified requirements. (2) An evaluation process used to measure the performance or effectiveness of a system and its elements. In this glossary, assessment is an all-inclusive term used to denote any one of the following: audit, performance evaluation, management system review, peer review, inspection, or surveillance.

**background concentration**—Naturally occurring concentrations of an inorganic chemical or radionuclide in soil, sediment, or tuff.

**background data**—Data that represent naturally occurring concentrations of inorganic and radionuclide constituents in a geologic medium. Los Alamos National Laboratory's (the Laboratory's) background data are derived from samples collected at locations that are either within, or adjacent to, the Laboratory. These locations (1) are representative of geological media found within Laboratory boundaries, and (2) have not been affected by Laboratory operations.

**background level**—(1) The concentration of a substance in an environmental medium (air, water, or soil) that occurs naturally or is not the result of human activities. (2) In exposure assessment, the concentration of a substance in a defined control area over a fixed period of time before, during, or after a data-gathering operation.

**background radiation**—The amount of radioactivity naturally present in the environment, including cosmic rays from space and natural radiation from soils and rock.

**background sample**—A sample collected from an area or site that is similar to the one being studied but known, or thought, to be free from constituents of concern.

- background value (BV)**—A statistically derived concentration (i.e., the upper tolerance limit [UTL]) of a chemical used to represent the background data set. If a UTL cannot be derived, either the detection limit or maximum reported value in the background data set is used.
- barrier**—Any material or structure that prevents, or substantially delays, the movement of solid-, liquid-, or gaseous-phase chemicals in environmental media.
- basalt**—A fine-grained, dark volcanic rock composed chiefly of plagioclase, augite, olivine, and magnetite.
- best management practices**—Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.
- beta radiation**—High-energy electrons emitted by certain types of radioactive nuclei, such as potassium-40. The beta particles emitted are a form of ionizing radiation also known as beta rays.
- bias**—The systematic deviation from a true value that remains constant over replicated measurements within the statistical precision of the measurement process.
- blank**—A sample that is expected to have a negligible or unmeasurable amount of an analyte. Results of blank sample analyses indicate whether field samples might have been contaminated during the sample collection, transport, storage, preparation, or analysis processes.
- borehole**—(1) A hole drilled or bored into the ground, usually for exploratory or economic purposes.  
(2) A hole into which casing, screen, and other materials may be installed to construct a well.
- caldera**—A large crater formed by a volcanic explosion or by the collapse of a volcanic cone.
- canopy**—The cover formed by the leafy upper branches of surrounding trees and shrubs.
- canyon**—A stream-cut chasm or gorge, the sides of which are composed of cliffs or a series of cliffs rising from the chasm's bed. Canyons are characteristic of arid or semiarid regions where downcutting by streams greatly exceeds weathering.
- chain of custody**—An unbroken, documented trail of accountability that is designed to ensure the uncompromised physical integrity of samples, data, and records.
- chemical**—Any naturally occurring or human-made substance characterized by a definite molecular composition.
- chemical analysis**—A process used to measure one or more attributes of a sample in a clearly defined, controlled, and systematic manner. Chemical analysis often requires treating a sample chemically or physically before measurement.
- chemical of concern**—A chemical identified in human-health or ecological risk assessments as posing a risk.
- chemical of potential concern (COPC)**—A detected chemical compound or element that has the potential to adversely affect human receptors as a result of its concentration, distribution, and toxicity.
- cleanup**—A series of actions taken to deal with the release, or threat of a 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, or corrective action.
- cleanup levels**—Media-specific contaminant concentration levels that must be met by a selected corrective action. Cleanup levels are established by using criteria such as the protection of human health and the environment; compliance with regulatory requirements; reduction of toxicity, mobility, or volume through treatment; long- and short-term effectiveness; implementability; and cost.

**colluvium**—A loose deposit of rock debris accumulated through the action of gravity at the base of a cliff or slope.

**comment period**—The time provided for the public to review and comment on a regulation action or rule-making after it has been published.

**communication tracker (CT) number**—A unique number assigned by the Environmental Remediation and Surveillance Program office to all incoming correspondence that needs a response (e.g., a notice of disapproval or request for supplemental information).

**Compliance Order on Consent (Consent Order)**—For the Environmental Remediation and Surveillance Program, an enforcement document signed by the New Mexico Environment Department, the U.S. Department of Energy, and the Regents of the University of California on March 1, 2005, which prescribes the requirements for corrective action at Los Alamos National Laboratory. The purposes of the Consent Order are (1) to define the nature and extent of releases of contaminants at, or from, the facility; (2) to identify and evaluate, where needed, alternatives for corrective measures to clean up contaminants in the environment and prevent or mitigate the migration of contaminants at, or from, the facility; and (3) to implement such corrective measures. The Consent Order supersedes the corrective action requirements previously specified in Module VIII of the Laboratory's Hazardous Waste Facility Permit.

**composite sample**—A sample collected over a temporal or spatial range that typically consists of a series of discrete equal samples that have been combined.

**conceptual hydrogeologic model**—An approximation of the occurrence, movement, and quality of groundwater in a given area and the relationship of that groundwater to the surface water, soil water, and geologic framework in that area.

**conceptual model**—See site conceptual model.

**confined**—Pertaining to groundwater in an artesian aquifer.

**confluence**—A place where two or more streams or canyons meet; the point where a tributary meets the main stream.

**Consent Order**—See Compliance Order on Consent.

**consolidated unit**—A group of solid waste management units (SWMUs), or SWMUs and areas of concern, which generally are geographically proximate and have been combined for the purposes of investigation, reporting, or remediation.

**construction worker scenario**—A land-use condition that evaluates exposures to a human receptor throughout a construction project. The activities typically involve substantial short-term on-site exposures.

**contaminant**—(1) Chemicals and radionuclides present in environmental media or on debris above background levels. (2) According to the March 1, 2005, Compliance Order on Consent (Consent Order), any hazardous waste listed or identified as characteristic in 40 Code of Federal Regulations (CFR) 261 (incorporated by 20.4.1.200 New Mexico Administrative Code [NMAC]); any hazardous constituent listed in 40 CFR 261 Appendix VIII (incorporated by 20.4.1.200 NMAC) or 40 CFR 264 Appendix IX (incorporated by 20.4.1.500 NMAC); any groundwater contaminant listed in the Water Quality Control Commission (WQCC) Regulations at 20.6.3.3103 NMAC; any toxic pollutant listed in the WQCC Regulations at 20.6.2.7 NMAC; explosive compounds; nitrate; and perchlorate. (Note: Under the Consent Order, the term “contaminant” does not include radionuclides or the radioactive portion of mixed waste.)



**contract analytical laboratory**—An analytical laboratory under contract to the University of California to analyze samples from work performed at Los Alamos National Laboratory.

**controlled area**—An indoor or outdoor Los Alamos National Laboratory area to which access is controlled for security reasons or for the protection of individuals from exposure to radiation and/or hazardous materials.

**corrective action**—(1) In the Resource Conservation and Recovery Act, an action taken to rectify conditions potentially adverse to human health or the environment. (2) In the quality assurance field, the process of rectifying and preventing nonconformances.

**corrective measure**—An action taken at a solid waste management unit or area of concern to protect human health or the environment in the event of a release of contaminants into the environment, or to prevent a release of contaminants into the environment.

**corrective measure evaluation**—An evaluation of potential remedial alternatives undertaken to identify a preferred remedy that will be protective of human health and the environment and that will attain appropriate cleanup goals.

**corrective measures implementation plan**—A detailed plan and specifications to implement an approved remedy at a facility. The corrective measures implementation plan is the third step in the corrective action process and includes the design, construction, maintenance, and monitoring of the chosen remedy.

**corrective measures study**—A formal process for identifying and evaluating alternative remedies for releases at a facility.

**Curie**—A unit of radioactivity defined as the quantity of any radioactive nuclide that has an activity of  $3.7 \times 10^{10}$  disintegrations per second (dps).

**data package**—The hard copy deliverable for each sample delivery group produced by a contract analytical laboratory in accordance with the statement of work for analytical services.

**data-quality assessment**—The statistical and/or scientific evaluation of a data set that establishes whether the data set is adequate for its intended use.

**data-quality objectives**—Qualitative and quantitative statements of the overall level of uncertainty that a decision maker will accept regarding results or decisions based on environmental data. The objectives provide the statistical framework for planning and managing environmental data operations that will meet user needs.

**data validation**—A systematic process that applies a defined set of performance-based criteria to a body of data and that may result in the qualification of the data. The data-validation process is performed independently of the analytical laboratory that generates the data set and occurs before conclusions are drawn from the data. The process may include a standardized data review (routine data validation) and/or a problem-specific data review (focused data validation).

**data verification**—The process of evaluating the completeness, correctness, consistency, and compliance of a laboratory data package against a specified standard or contract.

- Completeness: All required information is present—in both hard copy and electronic forms.
- Correctness: The reported results are based on properly documented and correctly applied algorithms.
- Consistency: The values are the same when they appear in different reports or are transcribed from one report to another.

- **Compliance:** The data pass numerical quality-control tests based on parameters or limits specified in a contract or in an auxiliary document.

**decision peer review**—A technical (subject-matter-expert) review that occurs before document writing has begun. The focus of the decision peer review is on the appropriateness of the stated objectives for the identified problem, on the adequacy of the proposed approach to address the objectives, and on the identification of concerns and necessary contingencies. Any decision that is expected to lead to the writing of a peer-reviewed document is subject to a decision peer review and falls under Quality Procedure 3.5, Peer Review Process.

**decommissioning**—The permanent removal of facilities and their components from service after the discontinued use of structures or buildings that are deemed no longer useful. Decommissioning must take place in accordance with regulatory requirements and applicable environmental policies.

**decontamination**—The removal of unwanted material from the surface of, or from within, another material.

**deferred action**—The postponement of the selection and implementation of a corrective measure.

**detect (detection)**—An analytical result, as reported by an analytical laboratory, that denotes a chemical or radionuclide to be present in a sample at a given concentration.

**detection limit**—The minimum concentration that can be determined by a single measurement of an instrument. A detection limit implies a specified statistical confidence that the analytical concentration is greater than zero.

**discharge**—The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into, or on, any land or water.

**disposal**—The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into, or on, any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

**document catalog number**—A unique document identifier designed to track every document generated by the Environmental Remediation and Surveillance Program. (This number is automatically assigned when an online document signature form is obtained.)

**document control**—The process of ensuring that documents are reviewed for adequacy, approved for release by authorized personnel, and distributed to, and used at, the location where the prescribed activity is to be performed.

**document peer review**—A technical, regulatory, and legal review of a final, professionally edited document. Before the peer review, the document should receive a Level 3 (full) edit as defined by Los Alamos National Laboratory's Communication Arts and Services (IM-1) Group. Because this review follows the decision peer review, the approach should already have been agreed upon. Thus, the primary focus of a document peer review is on content (and to a lesser extent on approach; the clarity of presentation; and a consistent, appropriate format). The document peer review may be either a panel review or a read review. Quality Procedure 4.9 (Document Development and Approval Process) lists the types of Environmental Remediation and Surveillance Program documents that require a formal peer review.

**dose (dosage)**—(1) The actual quantity of a chemical that is administered to an organism or to which it is exposed. (2) The amount of a substance that reaches a specific tissue (e.g., the liver). (3) The amount of a substance that is available for interaction with metabolic processes after it has crossed an organism's outer boundary.

**effluent**—Wastewater (treated or untreated) that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

**environmental assessment**—An environmental analysis that is prepared, pursuant to the National Environmental Policy Act, to determine whether a particular federal action would significantly affect the environment and thus require a more detailed environmental impact statement.

**Environmental Restoration (ER) Project**—A Los Alamos National Laboratory project established in 1989 as part of a U.S. Department of Energy nationwide program, and precursor of today's Environmental Remediation and Surveillance (ERS) Program. This program is designed (1) to investigate hazardous and/or radioactive materials that may be present in the environment as a result of past Laboratory operations, (2) to determine if the materials currently pose an unacceptable risk to human health or the environment, and (3) to remediate (clean up, stabilize, or restore) those sites where unacceptable risk is still present.

**environmental samples**—Air, soil, water, or other media samples that have been collected from streams, wells, and soils, or other locations, and that are not expected to exhibit properties classified as hazardous by the U.S. Department of Transportation.

**environmental surveillance**—The collection and analysis of samples from air, water, soil, foodstuffs, biota, and other media to determine the environmental quality of an industry or community. Environmental surveillance is performed commonly at sites that contain nuclear facilities.

**ephemeral**—Pertaining to a stream or spring that flows only during, and immediately after, periods of rainfall or snowmelt.

**equipment blank (rinsate blank)**—A sample used to rinse sample-collection equipment and expected to have negligible or unmeasurable amounts of analytes. The equipment blank is collected after the equipment decontamination is completed but before the collection of another field sample.

**ER data**—Data derived from samples that have been collected and paid for through Environmental Remediation and Surveillance Program funding.

**ER database (ERDB)**—A database housing analytical and other programmatic information for the Environmental Remediation and Surveillance Program. The ERDB currently contains about 3 million analyses in 300 tables.

**ER identification (ER ID) number**—A unique identifier assigned by the Environmental Remediation and Surveillance Program's Records Processing Facility to each document when it is submitted as a final record.

**evapotranspiration**—(1) The discharge of water from the earth's surface to the atmosphere by evaporation from lakes, streams, and soil surfaces and by transpiration from plants. (2) The loss of water from the soil by evaporation and/or by transpiration from the plants growing in the soil.

**exposure pathway**—Any path from the sources of contaminants to humans and other species or settings through air, soil, water, or food.

**facility**—All contiguous land (and structures, other appurtenances, and improvements on the land) used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units. For the purpose of implementing a corrective action, a facility is all the contiguous property that is under the control of the owner or operator seeking a permit under Subtitle C of the Resource Conservation and Recovery Act.

**fallout radionuclides**—Radionuclides that are present at globally elevated levels in the environment as a result of fallout from world-wide atomic weapons tests. The Los Alamos National Laboratory (the

Laboratory) background data sets consist of environmental surveillance samples taken from marginal and regional locations for the following radionuclides associated with fallout: tritium, cesium-137, americium-241, plutonium-238, plutonium-239/240, and strontium-90. Samples were collected from regional and marginal locations in the Laboratory's vicinity that were (1) representative of geological media found within Laboratory boundaries, and (2) were not impacted by Laboratory operations.

**fault**—A fracture, or zone of fractures, in rock along which vertical or horizontal movement has taken place and adjacent rock layers or bodies have been displaced.

**field blank (field reagent blank)**—A blank sample prepared in the field or carried to the sampling site, exposed to sampling conditions (e.g., by removing bottle caps), and returned to a laboratory to be analyzed in the same manner in which environmental samples are being analyzed. Field blanks are used to identify the presence of any contamination that may have been added during the sampling and analysis process.

**field duplicate (replicate) samples**—Two separate, independent samples taken from the same source, which are collected as collocated samples (i.e., equally representative of a sample matrix at a given location and time).

**field notebook**—A record of activities performed in the field or a compilation of field data.

**field reagent blank**—See field blank.

**field sample**—See sample.

**flood plain**—The flat, or nearly flat, land along a river or stream, or in a tidal area, that is covered by water during a flood.

**gamma radiation**—A form of electromagnetic, high-energy ionizing radiation emitted from a nucleus. Gamma rays are essentially the same as x-rays (though at higher energy) and require heavy shielding, such as concrete or steel, to be blocked.

**geohydrology**—The science that applies hydrologic methods to the understanding of geologic phenomena.

**grab sample**—A specimen collected by a single application of a field sampling procedure to a target population (e.g., the surface soil from a single hole collected after the spade-and-scoop sampling procedure, or a single air filter left in the field for three months).

**groundwater**—Interstitial water that occurs in saturated earth material and is capable of entering a well in sufficient amounts to be used as a water supply.

**grout**—Cement or bentonite mixtures used for sealing boreholes and wells and for zone isolation. Only Portland Type I or II cement is approved for use at investigative sites.

**half-life**—(1) The time required for a pollutant to lose one-half of its original concentration (for example, the biochemical half-life of DDT [dichlorodiphenyltrichloroethane] in the environment is 15 yr). (2) The time required for one half of the atoms in a radioactive element to undergo self-transmutation or decay (the half-life of radium is 1620 yr). (3) The time required for the elimination of one half of a total dose from the body.

**Hazardous and Solid Waste Amendments (HSWA)**—Public Law No. 98-616, 98 Stat. 3221, enacted in 1984, which amended the Resource Conservation and Recovery Act of 1976 (42 United States Code § 6901 et seq).

**hazardous constituent (hazardous waste constituent)**—According to the March 1, 2005, Compliance Order of Consent (Consent Order), any constituent identified in Appendix VIII of Part 261, Title 40

Code of Federal Regulations (CFR) (incorporated by 20.4.1.200 New Mexico Administrative Code [NMAC]) or any constituent identified in 40 CFR 264, Appendix IX (incorporated by 20.4.1.500 NMAC).

**hazardous waste**—(1) Solid waste that is listed as a hazardous waste, or exhibits any of the characteristics of hazardous waste (i.e., ignitability, corrosivity, reactivity, or toxicity, as provided in 40 CFR, Subpart C). (2) According to the March 1, 2005, Compliance Order of Consent (Consent Order), any solid waste or combination of solid wastes that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, meets the description set forth in New Mexico Statutes Annotated 1978, § 74-4-3(K) and is listed as a hazardous waste or exhibits a hazardous waste characteristic under 40 CFR 261 (incorporated by 20.4.1.200 New Mexico Administrative Code).

**Hazardous Waste Bureau**—The New Mexico Environment Department bureau charged with providing regulatory oversight and technical guidance to New Mexico hazardous waste generators and to treatment, storage, and disposal facilities, as required by the New Mexico Hazardous Waste Act.

**Hazardous Waste Facility Permit**—The authorization issued to Los Alamos National Laboratory (the Laboratory) by the New Mexico Environment Department that allows the Laboratory to operate as a hazardous waste treatment, storage, and disposal facility.

**high-explosive wastes**—Any waste-containing material having an amount of stored chemical energy that could start a violent reaction when initiated by impact, spark, or heat. This violent reaction would be accompanied by a strong shock wave and the potential for high-velocity particles to be propelled.

**holding time**—The maximum elapsed time a sample can be stored without unacceptable changes in analyte concentrations. Holding times apply under prescribed conditions, and deviations from these conditions may affect the holding times. Extraction holding time refers to the time lapsed between sample collection and sample preparation. Analytical holding time refers to the time lapsed between sample preparation and analysis.

**HSWA module**—See Module VIII.

**hydrogen-ion activity (pH)**—The effective concentration (activity) of dissociated hydrogen ions (H<sup>+</sup>); a measure of the acidity or alkalinity of a solution that is numerically equal to 7 for neutral solutions, increases with alkalinity, and decreases as acidity increases.

**“Hydrogeologic Workplan”**—The document that describes the activities planned by Los Alamos National Laboratory (the Laboratory) to characterize the hydrologic setting beneath the Laboratory and to enhance the Laboratory’s groundwater monitoring program.

**hydrogeology**—The science dealing with the occurrence of surface water and groundwater, their uses, and their functions in modifying the earth, primarily by erosion and deposition.

**infiltration**—(1) The penetration of water through the ground surface into subsurface soil. (2) The technique of applying large volumes of wastewater to land to penetrate the surface and percolate through the underlying soil.

**inspection**—The critical examination or measurement of an item or activity to determine its conformance to applicable quality standards or specifications.

**institutional controls**—Controls that prohibit or limit access to contaminated media. Institutional controls may include use restrictions, permitting requirements, standard operating procedures, laboratory implementation requirements, laboratory implementation guidance, and laboratory performance requirements.

**interim measure**—An action that can be implemented to minimize or prevent the migration of contaminants and to minimize or prevent actual or potential human or ecological exposure to

contaminants, while long-term final corrective action remedies are evaluated and, if necessary, implemented.

**intermittent stream**—A stream that flows only in certain reaches as a result of the channel bed's losing and gaining characteristics.

**interrupted stream**—A stream whose flow is discontinuous as a result of human-made structures.

**investigation-derived waste**—Solid waste or hazardous waste that was generated as a result of corrective action investigation or remediation field activities. Investigation-derived waste may include drilling muds, cuttings, and purge water from the installation of test pits or wells; purge water, soil, and other materials from the collection of samples; residues from the testing of treatment technologies and pump-and-treat systems; contaminated personal protective equipment; and solutions (aqueous or otherwise) used to decontaminate nondisposable protective clothing and equipment.

**land disposal**—Placement in or on the land, except in a corrective-action management unit or staging pile; this includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, or land treatment facility.

**land-disposal restrictions**—Requirements in Title 40 Code of Federal Regulations, Section 268 that specify treatment standards that protect human health and the environment when hazardous waste is land disposed. All hazardous waste, except under certain limited circumstances, must meet a specific treatment standard before it can be land disposed.

**LANL (Los Alamos National Laboratory) data validation qualifiers**—The Los Alamos National Laboratory data qualifiers which are defined by, and used, in the Environmental Remediation and Surveillance (ERS) Program validation process. The qualifiers describe the general usability (or quality) of data. For a complete list of data qualifiers applicable to any particular analytical suite, consult the appropriate ERS standard operating procedure.

**LANL (Los Alamos National Laboratory) data validation reason codes**—The Los Alamos National Laboratory designations applied to sample data by data validators who are independent of the contract laboratory that performed a given sample analysis. Reason codes provide an analysis-specific explanation for applying a qualifier, with some description of the qualifier's potential impact on data use. For a complete list of data qualifiers applicable to any particular analytical suite, consult the appropriate Environmental Remediation and Surveillance Program standard operating procedure.

**log book**—A notebook used to record tabulated data (e.g., the history of calibrations, sample tracking, numerical data, or other technical data).

**long-term environmental stewardship**—All the activities required to maintain an adequate level of protection for human health and the environment from risks posed by nuclear and/or chemical materials, waste, and contamination that remain after cleanup is complete.

**Los Alamos unlimited release (LA-UR) number**—A unique identification number required for all documents or presentations prepared for distribution outside Los Alamos National Laboratory (the Laboratory). LA-UR numbers are obtained by filling out a technical information release form (<http://enterprise.lanl.gov/alpha.htm>) and submitting the form together with 2 copies of the document to the Laboratory's Classification Group (S-7) for review.

**lower acceptance limit (LAL)**—The lowest limit that is acceptable according to quality control (QC) criteria for a specific QC sample and for a specific method. Any results lower than the LAL are qualified following the routine validation procedure.

**material disposal area (MDA)**—A subset of the solid waste management units at Los Alamos National Laboratory (the Laboratory) that include disposal units such as trenches, pits, and shafts. Historically, various disposal areas (but not all) were designated by the Laboratory as MDAs.

**matrix**—Relatively fine material in which coarser fragments or crystals are embedded; also called “ground mass” in the case of igneous rocks.

**maximum contaminant level (MCL)**—Under the Safe Drinking Water Act, the maximum permissible level of a contaminant in water that is delivered to any user of a public water system serving 15 or more connections and 25 or more people. MCLs are enforceable standards and take into account the feasibility and cost of attaining the standards.

**medium (environmental)**—Any material capable of absorbing or transporting constituents. Examples of media include tuffs, soils and sediments derived from these tuffs, surface water, soil water, groundwater, air, structural surfaces, and debris.

**medium (geological)**—The solid part of the hydrogeological system; may be unsaturated or saturated.

**method detection limit (MDL)**—The minimum concentration of a substance that can be measured and reported with a known statistical confidence that the analyte concentration is greater than zero. After subjecting samples to the usual preparation, the MDL is determined by analyzing those samples of a given matrix type that contain the analyte. The MDL is used to establish detection status.

**migration**—The movement of inorganic and organic chemical species through unsaturated or saturated materials.

**migration pathway**—A route (e.g., a stream or subsurface flow path) for the potential movement of contaminants to environmental receptors (plants, humans, or other animals).

**minimum detectable activity (MDA)**—For the analysis of radionuclides, the lowest detectable radioactivity for a given analytical technique. The following equation is used to calculate the MDA unless otherwise noted or approved by Los Alamos National Laboratory. (Note: “MDA” here should not be confused with material disposal area):

$$MDA = \frac{4.65(BKG)^{0.5} + 2.71}{2.22 \times EFF \times V \times T_s \times Y} ,$$

where BKG = the total background counts, EFF = the fraction detector efficiency,  
 V = the volume or unit weight,  
 Ts = the sample count duration, and  
 Y = the fractional chemical recovery obtained from the tracer recovery.

Depending on the type of analysis, other terms may also be required in the denominator (e.g., gamma abundance).

**mixed waste**—Waste containing both hazardous and source, special nuclear, or byproduct materials subject to the Atomic Energy Act of 1954.

**model**—A schematic description of a physical, biological, or social system, theory, or phenomenon that accounts for its known or inferred properties and may be used for the further study of its characteristics.

**Module VIII**—Module VIII of the Los Alamos National Laboratory (the Laboratory) Hazardous Waste Facility Permit. This permit allows the Laboratory to operate as a hazardous-waste treatment, storage, and disposal facility. From 1990 to 2005, Module VIII included requirements from the Hazardous and

Solid Waste Amendments. These requirements have been superceded by the March 1, 2005, Compliance Order on Consent (Consent Order).

**monitoring well**—(1) A well used to obtain water-quality samples or to measure groundwater levels, (2) A well drilled at a hazardous waste management facility or Superfund site to collect groundwater samples for the purpose of physical, chemical, or biological analysis and to determine the amounts, types, and distribution of contaminants in the groundwater beneath the site.

**National Pollutant Discharge Elimination System**—The national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits to discharge wastewater or storm water, and for imposing and enforcing pretreatment requirements under the Clean Water Act.

**no further action**—Under the Resource Conservation and Recovery Act, a corrective-action determination whereby, based on evidence or risk, no further investigation or remediation is warranted.

**nondetect**—A result that is less than the method detection limit.

**notice of deficiency**—A written notification from the administrative authority to a facility owner/operator following the review of a permit application or other permit-related plan or report. A notice of deficiency requests additional information before a decision can be made regarding the original plan or report.

**notices of approval, of approval with modification, or of disapproval**—Notices issued by the New Mexico Environment Department (NMED). Upon receipt of a work plan, schedule, report, or other deliverable document, NMED reviews the document and approves the document as submitted, modifies the document and approves it as modified, or disapproves the document. A notice of approval means that the document is approved as submitted. A notice of approval with modifications means that the document is approved but with modifications specified by NMED. A notice of disapproval means that the document is disapproved and it states the deficiencies and other reasons for disapproval.

**operable units (OUs)**—At Los Alamos National Laboratory, 24 areas originally established for administering the Environmental Remediation and Surveillance Program. Set up as groups of potential release sites, the OUs were aggregated according to geographic proximity for the purposes of planning and conducting Resource Conservation and Recovery Act (RCRA) facility assessments and RCRA facility investigations. As the project matured, it became apparent that there were too many areas to allow efficient communication and to ensure consistency in approach. In 1994, the 24 OUs were reduced to 6 administrative field units.

**outfall**—A place where effluent is discharged into receiving waters.

**panel review**—A type of decision peer review or document peer review that includes a face-to-face meeting between authors and reviewers for a discussion of issues.

**peer review**—See decision peer review and document peer review.

**perched water**—A zone of unpressurized water held above the water table by impermeable rock or sediment.

**perennial stream**—Water in a channel or bed that flows continuously throughout the year.

**permit**—An authorization, license, or equivalent control document issued by the U.S. Environmental Protection Agency or an approved state agency to implement the requirements of an environmental regulation.

**permit modification**—A change to a condition in a facility's permit, initiated by either a request from the permittee or by the administrative authority's action.



**polychlorinated biphenyls (PCBs)**—Any chemical substance limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination that contains such substances. PCBs are colorless, odorless compounds that are chemically, electrically, and thermally stable and have proven to be toxic to both humans and other animals.

**population**—(1) A group of interbreeding organisms occupying a particular space. (2) The number of humans or other living creatures in a designated area.

**porosity**—The degree to which soil, gravel, sediment, or rock is permeated with pores or cavities through which water or air can move.

**potential release site**—A term for a potentially contaminated site at Los Alamos National Laboratory that refers to solid waste management units and areas of concern.

**quality assurance/quality control**—A system of procedures, checks, audits, and corrective actions set up to ensure that all U.S. Environmental Protection Agency research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

**quality control**—See quality assurance/quality control.

**quality-control sample**—A specimen that, upon analysis, is intended to provide information that is useful for adjusting, controlling, or verifying the continuing acceptability of sampling and/or analysis activities in progress.

**quality management**—The portion of an organization's overall management system that determines and implements the quality policy. Quality management includes strategic planning, allocation of resources, and other systematic activities (e.g., planning implementation and assessment) pertaining to an organization's quality standards.

**quality management plan (QMP)**—A document providing a framework for planning, implementing, and assessing work performed by an organization and for carrying out required quality assurance/quality control. A QMP is part of an organization's structured and documented management system that describes the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan for ensuring quality in work processes, products, and services.

**quality procedure**—A document that describes the process, method, and responsibilities for performing, controlling, and documenting any quality-affecting activity governed by a quality management plan.

**radiation**—A stream of particles or electromagnetic waves emitted by atoms and molecules of a radioactive substance as a result of nuclear decay. The particles or waves emitted can consist of neutrons, positrons, alpha particles, beta particles, or gamma radiation.

**radioactive material**—For purposes of complying with U.S. Department of Transportation regulations, any material having a specific activity (activity per unit mass of the material) greater than 2 nanocuries per gram (nCi/g) and in which the radioactivity is evenly distributed.

**radioactive tracer**—A radionuclide added to, or induced in, a sample for the purpose of monitoring chemical or physical losses of target analytes. The tracer is assumed to behave in the same manner as the target analytes.

**radioactive waste**—Waste that, by either monitoring and analysis, or acceptable knowledge, or both, has been determined to contain added (or concentrated and naturally occurring) radioactive material or activation products, or that does not meet radiological release criteria.

**radioactivity (radioactive decay; radioactive disintegration)**—The spontaneous change in an atom by the emission of charged particles and/or gamma rays.

**radionuclide**—Radioactive particle (human-made or natural) with a distinct atomic weight number.

**RCRA facility assessment (RFA)**—Usually the first step in the Resource Conservation and Recovery Act (RCRA) corrective action process. The RFA includes the identification of potential and actual releases from solid waste management units and preliminary determinations about releases and the need for corrective action and stabilization measures.

**RCRA facility investigation (RFI)**—A Resource Conservation and Recovery Act (RCRA) investigation that determines if a release has occurred and characterizes the nature and extent of contamination at a hazardous waste facility. The RFI is generally equivalent to the remedial investigation portion of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

**reach**—A specific length of a canyon that is treated as a single unit for sampling and analysis. Reaches tend to be internally uniform with respect to geomorphic setting and land use.

**read review**—A review of a written document performed by a reviewer individually (without meeting as a group).

**readiness planning**—The process of identifying, sequencing, and scheduling the preparatory activities for fieldwork to ensure compliance with the applicable Los Alamos National Laboratory, local, state, and federal procedural requirements, standards, and regulations, including those regarding human health and safety and the environment.

**readiness review**—A process to ensure compliance to identified requirements, to document consensus that fieldwork may proceed, and to ensure that the associated activities are closed or scheduled appropriately.

**readiness review checklist**—An itemized guide for readiness planning and readiness review (Quality Procedure 5.3); this checklist is not designed to be comprehensive for all fieldwork.

**receptor**—A person, other animal, plant, or geographical location that is exposed to a chemical or physical agent released to the environment by human activities.

**recharge**—The process by which water is added to a zone of saturation, usually by percolation from the soil surface (e.g., the recharge of an aquifer).

**record**—Any book, paper, map, photograph, machine-readable material, or other documentary material, regardless of physical form or characteristics.

**recreational scenario**—A land-use condition under which individuals may be exposed to contaminants for a limited amount of time as a result of outdoor activities such as hiking, camping, hunting, or fishing.

**reference set**—A hard-copy compilation of reference items cited in Environmental Remediation and Surveillance Program documents.

**regional aquifer**—Geologic material(s) or unit(s) of regional extent whose saturated portion yields significant quantities of water to wells, contains the regional zone of saturation, and is characterized by the regional water table or potentiometric surface.

**regulatory standard**—Media-specific contaminant concentration levels of potential concern that are mandated by federal or state legislation or regulation (e.g., the Safe Drinking Water Act, New Mexico Water Quality Control Commission regulations).

**relative percent difference (RPD)**—The measure used to assess the precision between parent results and their associated duplicate results. The RPD is calculated as follows:

$$|RPD| = \frac{S - R}{\left(\frac{S + R}{2}\right)} 100 ,$$

where RPD = relative percent difference,  
S = parent sample result, and  
R = duplicate sample result.

The Environmental Remediation and Surveillance Program criteria for the RPD are less than 20% for aqueous samples and less than 35% for soil samples when the sample concentrations are greater than, or equal to, five times the method detection limit (MDL). For samples with concentrations less than five times the MDL, but greater than the MDL, the control is +/-MDL. No precision criterion applies to samples with concentrations less than the MDL.

**release**—Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of hazardous waste or hazardous constituents into the environment.

**remediation**—(1) The process of reducing the concentration of a contaminant (or contaminants) in air, water, or soil media to a level that poses an acceptable risk to human health and the environment.  
(2) The act of restoring a contaminated area to a usable condition based on specified standards.

**remediation waste**—All solid wastes and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris, that are managed for implementing cleanup.

**reporting limit (RL)**—The numerical value that an analytical laboratory (in conjunction with its client) selects for determining if a target analyte has been detected. Results below the RL are considered to be undetected, but results above the RL are considered to be detected. The RLs are not necessarily based on instrument sensitivity. RLs can be established at the instrument detection limit, method detection limit, estimated quantitation limit, or contract-required detection limit.

**request for supplemental information**—A request issued by the administrative authority (AA) that states that some aspect(s) of a plan or report does not meet the AA's requirements and that additional information is needed.

**request number**—An identifying number assigned by the Environmental Remediation and Surveillance Program to a group of samples submitted for analysis.

**residential scenario**—The land use condition under which individuals may be exposed to contaminants as a result of living on or near contaminated sites.

**Resource Conservation and Recovery Act**—The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Public Law [PL] 94-580, as amended by PL 95-609 and PL 96-482, United States Code 6901 et seq.).

**restricted area**—Any area to which access is controlled by a licensee to protect individuals from exposure to radiation and radioactive materials. The "restricted area" shall not include areas used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.

**retardation**—An act or process that reduces the rate of movement of a chemical substance in water relative to the average velocity of the water. The movement of chemical substances in water can be retarded by adsorption and precipitation reactions, and by diffusion into pore water in a given sedimentary or rock matrix.

**rinsate blank**—See equipment blank.

**risk**—A measure of the probability that damage to life, health, property, and/or the environment will occur as a result of a given hazard.

**risk analysis**—In the quality assurance field, a qualitative evaluation of the probability and the potential consequences associated with noncompliant documents or work activities.

**risk assessment**—See baseline risk assessment.

**risk characterization**—The last phase in the risk assessment process which estimates the potential for adverse health or ecological effects to occur as a result of exposure to a stressor, and which evaluates the uncertainty involved.

**risk management**—The process of evaluating and selecting alternative regulatory and nonregulatory responses to risk. The selection process necessarily requires the consideration of legal, economic, and behavioral factors.

**runoff**—The portion of the precipitation on a drainage area that is discharged from the area.

**run-on**—Surface water that flows onto an area as a result of runoff occurring higher up on a slope.

**sample**—A portion of a material (e.g., rock, soil, water, or air), which, alone or in combination with other portions, is expected to be representative of the material or area from which it is taken. Samples are typically either sent to a laboratory for analysis or inspection or are analyzed in the field. When referring to samples of environmental media, the term field sample may be used.

**sample matrix**—In chemical analysis, that portion of a sample that is exclusive of the analytes of interest. Together, the matrix and the analytes of interest form the sample.

**screening action level (SAL)**—A radionuclide's medium-specific concentration level; it is calculated by using conservative criteria below which it is generally assumed that no potential exists for a dose that is unacceptable to human health. The derivation of a SAL is based on conservative exposure and on land-use assumptions. However, if an applicable regulatory standard exists that is less than the value derived, it is used in place of the SAL.

**screening risk assessment**—A risk assessment that is performed with few data and many assumptions in order to identify exposures that should be evaluated more carefully for potential risk.

**sediment**—(1) A mass of fragmented inorganic solid that comes from the weathering of rock and is carried or dropped by air, water, gravity, or ice. (2) A mass that is accumulated by any other natural agent and that forms in layers on the earth's surface (e.g., sand, gravel, silt, mud, fill, or loess). (3) A solid material that is not in solution and is either distributed through the liquid or has settled out of the liquid.

**significant condition**—A condition that, if uncorrected, could have a serious effect on quality, project personnel, or public safety, or which could have a major impact on project costs or schedules.

**site characterization**—Defining the pathways and methods of migration of hazardous waste or constituents, including the media affected; the extent, direction and speed of the contaminants; complicating factors influencing movement; or concentration profiles.

**site closeout inspection**—An on-site inspection conducted after the completion of fieldwork. The closeout inspection verifies that all fieldwork has been completed and that all compliance issues have been resolved.

**site closeout packet**—Documentation related to fieldwork that includes field logs, waste-management documentation, best management practice (BMP) inspection records, and sample-management records.

**site conceptual model**—A qualitative or quantitative description of sources of contamination, environmental transport pathways for contamination, and receptors that may be impacted by contamination and whose relationships describe qualitatively or quantitatively the release of contamination from the sources, the movement of contamination along the pathways to the exposure points, and the uptake of contaminants by the receptors.

**site-specific health and safety plan (SSHASP)**—A health and safety plan that has been tailored to a site or to an Environmental Remediation and Surveillance (ERS) Program field activity and that has been approved by an ERS health and safety representative. A SSHASP contains information specific to the project, including the scope of work, relevant history, descriptions of hazards from activity associated with the project site(s), and techniques for exposure mitigation (e.g., personal protective equipment and hazard mitigation).

**slope**—A ratio of units of elevation change to units of horizontal change, usually expressed in degrees.

**soil**—(1) A material that overlies bedrock and has been subject to soil-forming processes. (2) A sample media group that includes naturally occurring and artificial fill materials.

**soil gas**—Gaseous elements and compounds in the small spaces between particles of the earth and soil. Such gases can be moved or driven out under pressure.

**soil hygrometer**—An instrument that measures soil moisture.

**soil moisture**—The water contained in the pore space of the unsaturated zone.

**soil screening level (SSL)**—The concentration of a chemical (inorganic or organic) below which no potential for unacceptable risk to human health exists. The derivation of an SSL is based on conservative exposure and land-use assumptions, and on target levels of either a hazard quotient of 1.0 for a noncarcinogenic chemical or a cancer risk of  $10^{-5}$  for a carcinogenic chemical.

**soil water**—Water in the unsaturated zone, regardless of whether it occurs in soil or rock.

**solid waste**—Any garbage, refuse, or sludge from a waste treatment plant, water-supply treatment plant, or air-pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities. Solid waste does not include solid or dissolved materials in domestic sewage; solid or dissolved materials in irrigation return flows; industrial discharges that are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended; or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended.

**solid waste management unit (SWMU)**—(1) Any discernible site at which solid wastes have been placed at any time, whether or not the site use was intended to be the management of solid or hazardous waste. SWMUs include any site at a facility at which solid wastes have been routinely and systematically released. This definition includes regulated sites (i.e., landfills, surface impoundments, waste piles, and land treatment sites), but does not include passive leakage or one-time spills from production areas and sites in which wastes have not been managed (e.g., product storage areas). (2) According to the March 1, 2005, Compliance Order on Consent (Consent Order), any discernible site at which solid waste has been placed at any time, and from which the New Mexico Environment Department determines there may be a risk of a release of hazardous waste or hazardous waste constituents (hazardous constituents), whether or not the site use was intended to be the management

of solid or hazardous waste. Such sites include any area in Los Alamos National Laboratory at which solid wastes have been routinely and systematically released; they do not include one-time spills.

**split sample**—A sample that has been divided into two or more portions that are expected to be of the same composition; used to characterize within-sample heterogeneity, sample handling, and measurement variability.

**spring**—Groundwater seeping out of the earth where the water table intersects the ground surface.

**standard operating procedure**—A document that details the officially approved method(s) for an operation, analysis, or action, with thoroughly prescribed techniques and steps.

**stratification**—The process of separating into layers.

**stratigraphy**—The study of the formation, composition, and sequence of sediments, whether consolidated or not.

**Superfund**—Another term for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The two terms are used interchangeably.

**surface sample**—A sample taken at a collection depth that is (or was) representative of the medium's surface during the period of investigative interest. A typical depth interval for a surface sample is 0 to 6 in. for mesa-top locations, but may be up to several feet in sediment-deposition areas within canyons.

**target analyte**—A chemical or parameter, the concentration, mass, or magnitude of which is designed to be quantified by a particular test method.

**technical area (TA)**—At Los Alamos National Laboratory, an administrative unit of operational organization (e.g., TA-21).

**technical notebook**—A record of the methodology, observations, and results of technical activity investigations.

**topography**—The physical or natural features of an object or entity and their structural relationships.

**toxic pollutant**—A water contaminant or combination of water contaminants in concentration(s) that, upon exposure, ingestion, or assimilation, either directly from the environment or indirectly by ingestion through food chains, will unreasonably threaten to injure the health of humans, or the health of other animals or plants that are commonly hatched, bred, cultivated, or protected for use by humans for food or economic benefit.

**tracer**—A substance, usually a radioactive isotope, that is added to, or induced in, a sample for the purpose of monitoring chemical or physical losses of the target analytes. The tracer is assumed to behave in the same manner as the target analytes.

**transmissivity**—The ability of an aquifer to transmit water.

**transport (transportation)**—(1) The movement of a hazardous waste by air, rail, highway, or water.  
(2) The movement of a contaminant from a source through a medium to a receptor.

**treatment**—Any method, technique, or process, including elementary neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, recover energy or material resources from the waste, or to render such waste nonhazardous or less hazardous; safer to transport, store, or dispose of; or amenable for recovery or storage; or reduced in volume.

**treatment, storage, and disposal facility**—An interim-status or permitted facility in which hazardous waste is treated, stored, or disposed.

**trip blank**—A sample of analyte-free medium taken from a sampling site and returned to an analytical laboratory unopened, along with samples taken in the field; used to monitor cross contamination of samples during handling and storage both in the field and in the analytical laboratory.

**tuff**—Consolidated volcanic ash, composed largely of fragments produced by volcanic eruptions.

**unconfined aquifer**—An aquifer containing water that is not under pressure; the water level in a well is the same as the water table outside the well.

**underground storage tank**—A tank located at least partially underground and designed to hold gasoline or other petroleum products or chemicals.

**unique identifier**—A word or code that aids in the ability to trace the history, application, or location of an activity, item, datum, or sample using recorded documentation. For Environmental Remediation and Surveillance Program records, a unique identifier is an alphanumeric identifier assigned to a primary record.

**unrestricted area**—Any area, whose access is not controlled by a licensee for purposes of protecting individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.

**unsaturated zone**—The area above the water table where soil pores are not fully saturated, although some water may be present.

**upper acceptance limit (UAL)**—The highest limit that is acceptable, based on the quality control (QC) criteria for a specific QC sample for a specific method. Any results greater than the UAL are qualified.

**upper confidence limit**—The statistic that represents the upper bound of the arithmetic mean (usually 95%) of the measured data and that is used in a risk assessment as the reasonable maximum exposure point concentration.

**upper tolerance limit**—A statistical measure of the upper end of a distribution. The 95th percentile upper tolerance limit, which is the 95% upper percentile of the 95th percentile of the data distribution, is the background value used to represent the background data distribution for an inorganic chemical or naturally occurring radionuclide.

**U.S. Department of Energy**—The federal agency that sponsors energy research and regulates nuclear materials for weapons production.

**U.S. Environmental Protection Agency (EPA)**—The federal agency responsible for enforcing environmental laws. Although state regulatory agencies may be authorized to administer some of this responsibility, EPA retains oversight authority to ensure the protection of human health and the environment.

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

**verification**—A test or tests, generally performed before and after logging in lieu of a calibration, to ascertain whether the logging system is operating properly. Verification differs from calibration in that it does not provide updated system-calibration values.

**water balance**—The relationship between water input (precipitation) and water output (runoff, evapotranspiration, and recharge) in a hydrological system.

**water content**—The amount of water in an unsaturated medium, expressed as the ratio of the weight of water in a sample to the weight of the oven-dried sample (often expressed as a percentage).

**watercourse**—Any river, creek, arroyo, canyon, draw, wash, or other channel that has definite banks and beds and provides visual evidence of the occasional flow of water.

**watershed**—A region or basin drained by, or contributing waters to, a river, stream, lake, or other body of water and separated from adjacent drainage areas by a divide, such as a mesa, ridge, or other geologic feature.

**water table**—The top of the regional saturated zone; the piezometric surface associated with an unconfined aquifer.

**welded tuff**—A volcanic deposit hardened by the action of heat, pressures from overlying material, and hot gases.

**work plan**—A document that specifies the activities to be performed when implementing an investigation or remedy. At a minimum, the work plan should identify the scope of the work to be performed, specify the procedures to be used to perform the work, and present a schedule for performing the work. The work plan may also present the technical basis for performing the work.

### A-3.0 METRIC CONVERSION TABLE

Multiply SI (Metric) Unit	by	To Obtain US Customary Unit
kilometers (km)	0.622	miles (mi)
kilometers (km)	3281	feet (ft)
meters (m)	3.281	feet (ft)
meters (m)	39.37	inches (in.)
centimeters (cm)	0.03281	feet (ft)
centimeters (cm)	0.394	inches (in.)
millimeters (mm)	0.0394	inches (in.)
micrometers or microns ( $\mu\text{m}$ )	0.0000394	inches (in.)
square kilometers ( $\text{km}^2$ )	0.3861	square miles ( $\text{mi}^2$ )
hectares (ha)	2.5	acres
square meters ( $\text{m}^2$ )	10.764	square feet ( $\text{ft}^2$ )
cubic meters ( $\text{m}^3$ )	35.31	cubic feet ( $\text{ft}^3$ )
kilograms (kg)	2.2046	pounds (lb)
grams (g)	0.0353	ounces (oz)
grams per cubic centimeter ( $\text{g}/\text{cm}^3$ )	62.422	pounds per cubic foot ( $\text{lb}/\text{ft}^3$ )
milligrams per kilogram (mg/kg)	1	parts per million (ppm)
micrograms per gram ( $\mu\text{g}/\text{g}$ )	1	parts per million (ppm)
liters (L)	0.26	gallons (gal.)
milligrams per liter (mg/L)	1	parts per million (ppm)
degrees Celsius ( $^{\circ}\text{C}$ )	$9/5 + 32$	degrees Fahrenheit ( $^{\circ}\text{F}$ )