

CHAPTER 10.0

GLOSSARY

This glossary lists terms of art or scientific expressions that may not be familiar to some readers of the SWEIS. The terms are defined as they are used in the SWEIS. Statutes or laws are defined and discussed in volume I of the SWEIS, chapter 7, Applicable Laws, Regulation, and Other Requirements.

Absorbed dose: The energy absorbed by matter from ionizing radiation per unit mass of irradiated material at the place of interest in that material. The absorbed dose is expressed in units of rad (or gray) (1 rad = 0.01 gray) (10 CFR 835.2).

Accident: Unexpected or undesirable event that leads to the release of hazardous material within a facility or into the environment, exposing workers or the public to hazardous materials or radiation.

Accord Pueblos: Four Pueblos that have each executed formal accord documents with DOE setting forth the government-to-government relationship between each of the Pueblos and DOE. The four Pueblos are Cochiti, San Ildefonso, Santa Clara, and Jemez.

Actinide: Any of a series of elements with atomic numbers ranging from actinium-89 through lawrencium-103.

Acute exposure: A single or short-term exposure to a toxic substance that may result in health effects.

Advisory Council of Historic Preservation (Council): An independent 19-member federal council created by the *National Historic Preservation Act of 1996*, Title II (16 U.S.C. §470 *et seq.*). The council meets quarterly to review and comment on National Register of Historic Places and Section 106 compliance cases.

Adverse effect: A change produced to an eligible cultural resource that results in demised integrity of location, setting, design, physical condition, materials, workmanship, feeling, or association. When applied to humans or animals, an undesirable health effect.

Air pollutant: Any substance in air that could, if in high enough concentration, harm humans, other animals, or vegetation.

Air quality standards: The level of pollutants in the air prescribed by regulations that may not be exceeded during a specified time in a defined area.

Alpha emitter: A radioactive substance that decays by releasing an alpha particle.

Alpha particle: A positively charged particle ejected spontaneously from the nuclei of some radioactive elements. It is identical to a helium nucleus and has a mass number of 4 and an electrostatic charge of +2. It has low penetrating power and a short range (a few centimeters in air).

Alpha radiation: A strongly ionizing, but weakly penetrating, form of radiation consisting of positively charged alpha particles emitted spontaneously from the nuclei of certain elements during radioactive decay. Alpha radiation is the least penetrating of the four common types of ionizing radiation (alpha, beta, gamma, and neutron). Even the most energetic alpha particle generally fails to penetrate the dead layers of cells covering the skin and can be easily stopped by a sheet of

paper. Alpha radiation is most hazardous when an alpha-emitting source resides inside an organism.

Ambient air: That portion of the atmosphere, external to buildings, to which the general public is exposed.

Americium: Americium is a manmade metal that is slightly heavier than lead. Americium-241 is produced by the radioactive decay of plutonium-241; in addition to being an alpha-emitter, it is an emitter of gamma rays. Americium-241 has a half-life of 433 years.

Aquifer: Rock or sediment in a formation, group of formations, or part of a formation that is saturated and sufficiently permeable to conduct groundwater.

Archaeological sites (resources): Any location where humans have altered the terrain or discarded artifacts during either prehistoric or historic times.

Artifact: An object of archaeological or historical interest produced or shaped by human workmanship.

As low as reasonably achievable (ALARA): The approach to manage and control exposures (both individual and collective) to the workforce and to the general public to as low as is reasonable, taking into account social, technical, economic, practical, and public policy considerations. ALARA is not a dose limit but a process that has the objective of attaining doses as far below the applicable limits as is reasonably achievable (10 CFR 835.2).

Atomic Energy Commission (AEC): A five-member commission, established by the *Atomic Energy Act of 1946*, to supervise nuclear weapons design, development, manufacturing, maintenance, modification, and dismantlement. In 1974, the Atomic Energy Commission was abolished and all functions were transferred to the U.S. Nuclear Regulatory Commission and

the Administrator of the Energy Research and Development Administration. The Energy Research and Development Administration was later terminated and its functions vested by law in the Administrator were transferred to the Secretary of Energy.

Atomic number: The number of positively charged protons in the nucleus of an atom or the number of electrons on an electrically neutral atom.

Attainment area: An area that the U.S. Environmental Protection Agency has designated as being in compliance with one or more of the National Ambient Air Quality Standards (NAAQS) for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An area may be in attainment for some pollutants but not for others.

Authorization/safety basis: Those aspects of the facility design basis and operational requirements relied upon by the DOE as necessary to authorize operation. These aspects are considered to be important to the safety of facility operations. The authorization basis is described in documents such as the facility Safety Analysis Report (SAR) and other safety analyses, hazard classification documents, the technical safety requirements (TSRs), DOE-issued safety evaluation reports, and facility-specific commitments made to comply with DOE orders or policies. Authorization basis is considered to be equivalent to safety basis. Authorization basis also is defined as a combination of authorization/safety basis, the environmental basis, and other regulatory basis documents.

Background radiation: Radiation from: (1) naturally occurring radioactive materials that have not been technologically enhanced, (2) cosmic sources, (3) global fallout as it exists in the environment (such as from the testing of nuclear explosive devices), (4) radon and its progeny in concentrations or levels existing in

buildings or the environment that have not been elevated as a result of current or past human activities, and (5) consumer products containing nominal amounts of radioactive material or producing nominal levels of radiation (10 CFR 835.2).

Badged worker: A worker equipped with an individual dosimeter who has the potential to be exposed to radiation.

Baseline: A quantitative expression of conditions, costs, schedule, or technical progress to serve as a base or standard for measurement during the performance of an effort; the established plan against which the status of resources and the progress of a project can be measured. For the SWEIS, the environmental baseline is the site environmental conditions that are considered representative for the purpose of projecting future impacts.

Beryllium: An extremely lightweight, strong metal used in weapons systems.

Best available technology (BAT): Economically achievable pollution control methods that will allow point sources to comply with the effluent limitations required by the *Clean Water Act*. Factors to be taken into account in assessing what is the best available technology include the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, environmental impacts other than water quality (including energy requirements), and such other factors as the U.S. Environmental Protection Agency Administrator deems appropriate.

Best management practices (BMPs): Structural, nonstructural, and managerial techniques, other than effluent limitations, to prevent or reduce pollution of surface water. They are the most effective and practical means to control pollutants that are compatible with the productive use of the resource to which they are

applied. BMPs are used in both urban and agricultural areas. BMPs can include schedules of activities; prohibitions of practices; maintenance procedures; treatment requirements; operating procedures; and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Beta emitter: A radioactive substance that decays by releasing a beta particle.

Beta particle: A negatively charged particle emitted during the radioactive decay of many radionuclides. A beta particle is identical with an electron. It has a short range in air and a small ability to penetrate other materials.

Beta radiation: Ionizing radiation consisting of fast moving, positively or negatively charged elementary particles emitted from atomic nuclei during radioactive decay. Beta radiation is more penetrating but less ionizing than alpha radiation. Negatively charged beta particles are identical to electrons; positively charged beta particles are known as positrons. Both are stopped by clothing or a thin sheet of metal.

Biota: Living organisms including plants and animals.

Blast circle: The area wherein fragments from tests may fall and from which humans are excluded during tests.

Bound/bounding: To use simplifying assumptions and analytical methods in an analysis of impacts or risks such that the result overestimates or describes an upper limit on (i.e., "bounds") potential impacts or risks. A bounding analysis is an analysis designed to overestimate or determine an upper limit to potential impacts or risks. A bounding accident is a hypothetical accident for which the calculated consequences equal or exceed the consequences of all other potential accidents for a particular activity or facility.

Byproduct material: Any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Byproduct material is exempt from regulation under the *Resource Conservation and Recovery Act*. However, the exemption applies only to the actual radionuclides dispersed or suspended in the waste substance. Any nonradioactive hazardous waste component of the waste is subject to regulation under the *Resource Conservation and Recovery Act*.

Caldera: A large crater formed by the collapse of the central part of a volcano.

Cancer: The name given to a group of diseases characterized by uncontrolled cellular growth with cells having invasive characteristics such that the disease can transfer from one organ to another.

Candidate species: Plants and animals native to the U.S. for which the U.S. Fish and Wildlife Service or the National Marine Fisheries Service has sufficient information on biological vulnerability and threats to justify proposing to add them to the threatened and endangered species list, but cannot do so immediately because other species have a higher priority for listing. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service determine the relative listing priority of candidate taxa in accordance with general listing priority guidelines published in the *Federal Register*.

Canned subassemblies: A component in certain nuclear explosives that may contain natural, depleted, or highly enriched uranium or lithium. The “secondary” in a nuclear weapon.

Capability: The combination of equipment, facilities, infrastructure, and expertise required to undertake types or groups of activities and implement mission element assignments.

Cavate Pueblo: Structure making use of natural rock to form the sides of a single structure or group of buildings, frequently by hollowing out the interior space.

Cesium: A silver-white alkali metal. A radioactive isotope of cesium, cesium-137, is a common fission product.

Characteristic waste: A solid waste defined as hazardous because it exhibits one of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity.

Cladding: A metal coating bonded onto another metal.

Climatology: The characteristics of the weather over a period of time. The science of climatology addresses the causes, distribution, and effects of weather on the environment and humans.

Code of Federal Regulations (CFR): All federal regulations in force are published in codified form in the Code of Federal Regulations.

Cold War period: The historic period from 1949 to 1989, characterized by international tensions and nuclear armament buildup, especially between the U.S. and the U.S.S.R. The era began approximately at the end of World War II when the *Atomic Energy Act* was passed, establishing the Atomic Energy Commission, and ended with the dissolution of the U.S.S.R. into separate republics and the ending of large-scale nuclear weapons production in the U.S.

Collective dose: The sum of the total effective dose equivalent (TEDE) values of all individuals in a specified population. Collective

dose is expressed in units of person-rem (or person-sievert) (10 CFR 835).

Committed dose equivalent (CDE): The dose equivalent calculated to be received by a tissue or organ over a 50-year period after the intake of radionuclide into the body. It does not include contributions from external dose. Committed dose equivalent is expressed in units of rem (or sievert) (10 CFR 835.2).

Committed effective dose equivalent (CEDE): The sum of the committed dose equivalents to various tissues of the body, each multiplied by the appropriate weighting factor. Committed effective dose equivalent is expressed in units of rem (or sievert) (10 CFR 835).

Community (biotic): All plants and animals occupying a specific area and their relationships.

Conceptual design: Efforts to develop a project scope that will satisfy program needs; ensure project feasibility and attainable performance levels of the project for congressional consideration; develop project criteria and design parameters for all engineering disciplines; and identify applicable codes and standards, quality assurance requirements, environmental studies, construction materials, space allowances, energy conservation features, health and safety, safeguards, security requirements, and any other features or requirements necessary to describe the project.

Contact-handled waste: Radioactive waste or waste packages with an external dose rate low enough to permit contact handling by humans during normal waste management activities. Contact-handled transuranic waste means transuranic waste with a surface dose rate not greater than 200 millirem per hour.

Container: The metal envelope in a waste package that provides the primary containment

function of the waste package and is designed to meet the containment requirements of 10 CFR 60.

Contamination: The deposition or discharge of chemicals, radionuclides, or particulate matter above a given threshold, usually associated with an effects level onto or into environmental media, structures, areas, objects, personnel, or nonhuman organisms.

Cooperating agency: As defined by the Council on Environmental Quality regulations for implementing NEPA, any federal agency other than a lead agency that has jurisdiction by law of special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action. A state or local agency of similar qualifications or, when the effects are on a reservation, an Indian tribe, may by agreement with the lead agency become a cooperating agency (40 CFR 1508.5).

Credible accident: An accident that has a probability of occurrence greater than or equal to once in a million years.

Criteria of effect: Regulations in 36 CFR Parts 800.5(a) and 800.9(b) and Section 106 of the *National Historic Preservation Act* (16 U.S.C. §470 *et seq.*) that provide guidelines for determining the kind and intensity of effect to an eligible cultural resource.

Criteria pollutant: Six air pollutants for which National Ambient Air Quality Standards are established by the U.S. Environmental Protection Agency: sulfur dioxide, nitric oxides, carbon monoxide, ozone, particulate matter-10 (smaller than 10 microns in diameter), and lead.

Critical habitat: Habitat essential to the conservation of an endangered or threatened species that has been designated as critical by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the

procedures outlined in the *Endangered Species Act* and its implementing regulations (50 CFR 424). The lists of critical habitats can be found in 50 CFR 17.95 (fish and wildlife), 50 CFR 17.96 (plants), and 50 CFR 226 (marine species).

Criticality event or accident: The accidental creation of an uncontrolled, self-sustaining nuclear chain reaction, accompanied by highly damaging external ionizing radiation.

Cultural resources: Any prehistoric or historic sites, buildings, structures, districts, or other places or objects (including biota of importance) considered to be important to a culture, subculture, or community for scientific, traditional, or religious purposes or for any other reason. In the SWEIS, prehistoric cultural resources refer to any material remains and items used or modified by people before the establishment of a European presence in the upper Rio Grande Valley in the early 17th Century; historic cultural resources include all material remains and any other physical alteration of the landscape that has occurred since the arrival of Europeans in the region.

Cultural resource site: The specific place or location of regular human occupation or use, as indicated by one or more forms of physical evidence.

Cultural resources survey: Evaluating the significance of the resources and their eligibility for inclusion in the National Register of Historic Places.

Cumulative impacts: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal), private industry, or individuals undertake such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

Curie (Ci): The conventional unit of activity in a sample of radioactive material. The curie is equal to 37 billion disintegrations per second, which is approximately the rate of decay of 1 gram of radium. A curie also is a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second.

Decay (radioactive): The decrease in the amount of any radioactive material with the passage of time, due to the spontaneous transformation of an unstable nuclide into a different nuclide or into a different energy state of the same nuclide; the emission of nuclear radiation (alpha, beta, or gamma radiation) is part of the process.

Decibel (dB): A unit of sound measurement. In general, a sound doubles in loudness for every increase of 10 decibels.

Decibel, A-weighted (dBa): A unit of weighted sound pressure level measured by the use of a metering characteristic and the “A” weighting specified by the American National Standards Institute (S1.4-1971[R176]).

Decommissioning: As used in this SWEIS, the process of decontamination, disassembly, and storage or disposal in a manner and state that assures future exposure of humans and the environment would be at acceptable levels.

Decontamination: The removal or reduction of radioactive or chemical contamination from facilities, equipment, or soils by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques.

Depleted uranium (DU): Uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.

Deposition: In geology, the laying down of potential rock-forming materials (sedimentation). In atmospheric sciences, the collection and retention of airborne particulates of gases on any solid or liquid surface (called

dry deposition), or their removal from the air by precipitation (called wet deposition or precipitation scavenging).

Derived concentration guide (DCG): The concentration of a radionuclide in air or water that, under conditions of continuous exposure for 1 year by one exposure mode (e.g., ingestion of water, submersion in air, or inhalation of air), would result in an effective dose equivalent equal to the annual dose limit for that group exposed. For the public, this would be a dose of 100 millirem to a reference human who inhales 296,000 cubic feet (8,400 cubic meters) of air and ingests 195 gallons (730 liters) of water in a year.

Design basis accident: An accident postulated for the purpose of establishing functional and performance requirements for safety structures, systems, and components.

Design laboratory (or weapons laboratory): DOE facilities involved in the design of nuclear weapons.

Detailed operating procedure (DOP): Approved and authorized procedures for conducting a task.

Detriment: Negative effects from exposure to ionizing radiation. Harmful effects on health are called “health detriment.”

Deuterium: A nonradioactive isotope of the element hydrogen with one neutron and one proton in the atomic nucleus.

Direct economic effects: The initial increases in output from different sectors of the economy resulting from some new activity within a predefined geographic region.

Direct effect multiplier: The total change in regional earnings and employment in all related industries as a result of one-dollar changes in earnings and an on-the-job change in a given industry.

Dismantlement: The process of taking apart a nuclear weapon or nuclear weapon component. This process takes place at LANL.

Dispersion: The downwind spreading of a plume by turbulence and meander in wind direction, resulting in a plume of lower concentration over a larger area.

Disposal: The process of placing waste in a final repository.

Disposal cell: Trench for disposal of low-level waste.

Disposition: The ultimate fate or end use of a surplus nuclear material or DOE facility following the transfer of the facility to the Office of the Assistant Secretary for Environmental Waste Management or the Director of the Office of Fissile Materials Disposition.

DOE orders: DOE directives that promulgate requirements and policies to DOE employees and contractors, including requirements to comply with other laws and regulations.

Dose (or radiation dose): The amount of energy deposited in body tissue as a result of radiation exposure. Various technical terms, such as absorbed dose, collective dose, dose equivalent, and effective dose equivalent, are used to evaluate the amount of radiation an exposed person receives. Each of these terms is defined in this glossary.

Dose equivalent: The product of absorbed dose in rad (or gray) in tissue, a quality factor, and other modifying factors. Dose equivalent is expressed in units of rem (or sievert) (1 rem = 0.01 sievert) (10 CFR 835.2).

Dosimeter: A device, instrument, or system that measures radiation dose (e.g., film badge or ionization chamber).

Drawdown: The height difference between the natural water level in a formation and the

reduced water level in the formation caused by the withdrawal of groundwater.

Drinking-water standards: The prescribed level of constituents or characteristics in a drinking water supply that cannot be exceeded legally.

Ecology: A branch of science dealing with the interrelationships of living organisms with one another and with their nonliving environment.

Ecosystem: Living organisms and their nonliving (abiotic) environment functioning together as a community.

Ecotone: Transition zone between two adjacent distinct plant or animal communities.

Effective dose equivalent (EDE): The summation of the products of the dose equivalent received by specified tissues or organs of the body and the appropriate weighting factor. It includes the dose from radiation sources internal and/or external to the body. The effective dose equivalent is expressed in units of rem (or sievert) (10 CFR 835.2).

Effluent: A waste stream flowing into the atmosphere, surface water, groundwater, or soil. Most frequently the term applies to wastes discharged to surface waters.

Eligibility: The criteria of significance in American history, architecture, archeology, engineering, and culture. The criteria require integrity and association with lives or events, distinctiveness for any of a variety of reasons, or importance because of information the property does or could hold.

Eligible cultural resource: A cultural resource that has been evaluated and reviewed by an agency and the State Historic Preservation Office(r) and recommended as eligible for inclusion in the National Register of Historic Places, based on the criteria of significance.

Emission standards: Legally enforceable limits on the quantities and/or kinds of air contaminants that can be emitted into the atmosphere.

Endangered species: Plants and animals that are threatened with extinction, serious depletion, or destruction of critical habitat. Requirements for declaring a species endangered are contained in the *Endangered Species Act*.

Enduring stockpile: The U.S. nuclear stockpile of the future, consisting of fewer than 10 weapon systems (many of them older than their design lifetime), with no new systems added to the stockpile for the foreseeable future.

Energetic material: Generic term for high explosives and propellants.

Enriched uranium: A mixture of uranium isotopes that has greater amounts of the isotope uranium-235 than occur naturally. Naturally occurring uranium is nominally 0.720 percent uranium-235.

Environmental assessment (EA): A written environmental analysis that is prepared pursuant to the *National Environmental Policy Act* to determine whether a major federal action could significantly affect the environment and thus require preparation of an environmental impact statement. If the action would not significantly affect the environment, then a Finding of No Significant Impact is issued.

Environmental impact statement (EIS): A document required of federal agencies by the *National Environmental Policy Act* for proposals for legislation or major federal actions significantly affecting the quality of the human environment. A tool for decision making, it describes the positive and negative environmental impacts of the proposed action and alternative actions.

Environmental justice: A requirement of Executive Order 12898 for federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental impacts of federal programs, policies, and activities on minority and low-income populations.

Environmental monitoring: The process of sampling and analysis of environmental media in and around a facility being monitored for the purpose of: (1) confirming compliance with performance objectives and (2) early detection of any contamination entering the environment to facilitate timely remedial action.

Environmental Restoration (ER) Program: Program at LANL responsible for investigation and remediation of solid waste management units (SWMUs).

Ephemeral stream: A stream that flows only after a period of heavy precipitation.

Epicenter: The point on the Earth's surface directly above the focus of an earthquake.

Epidemiology: The science concerned with the study of events that determine and influence the frequency and distribution of disease, injury, and other health-related events and their causes in defined human populations.

Ethnographic: Information about cultural beliefs and practices.

Exposure limit: The legal limit of accumulated exposure (to ionizing radiation, nonionizing radiation, noise, chemicals, or other hazardous substances).

Exposure pathway: The course a chemical or physical agent takes from the source to the exposed organism. An exposure pathway describes a mechanism by which chemicals or physical agents at or originating from a release site reach an individual or population. Each exposure pathway includes a source or release

from a source, an exposure route, and an exposure point. If the exposure point differs from the source, a transport/exposure medium such as air or water also is included.

Fabrication: For the purpose of the SWEIS, the terms "fabrication" and "manufacturing" are synonymous. See "manufacturing."

Fault: A fracture or a zone of fractures within a rock formation along which vertical, horizontal, or transverse slippage has occurred.

Finding of No Significant Impact (FONSI): A document by a federal agency briefly presenting the reasons why an action, not otherwise excluded, will not have a significant effect on the human environment and will not require an environmental impact statement.

Fissile material: Any material consisting of or containing one or more fissile radionuclides. Fissile radionuclides are plutonium-238, plutonium-239, plutonium-241, uranium-233, uranium-235, or any combination of these radionuclides. The definition does not apply to unirradiated natural uranium and depleted uranium, and natural uranium or depleted uranium that has been irradiated in a thermal reactor (49 CFR 173.403). DOE Order 5480.3 also includes curium-244 and neptunium-237 as fissile materials.

Fission: The splitting of a heavy atomic nucleus into two nuclei of lighter elements, accompanied by the release of energy and generally one or more neutrons. Fission can occur spontaneously or be induced by neutron bombardment.

Fission products: Nuclei formed by the fission of heavy elements (primary fission products); also, the nuclei formed by the decay of the primary fission products, many of which are radioactive.

Floodplains: The lowlands and relatively flat areas adjoining inland and coastal waters and

the flood-prone areas of offshore islands. Floodplains include, at a minimum, that area with at least a 1.0 percent chance of being inundated by a flood in any given year.

The “base floodplain” is defined as the area that has a 1.0 percent or greater chance of being flooded in any given year. Such a flood is known as a 100-year flood.

The “critical action floodplain” is defined as the area that has at least a 0.2 percent chance of being flooded in any given year. Such a flood is known as a 500-year flood. Any activity for which even a slight chance of flooding would be too great (e.g., the storage of highly volatile, toxic, or water reactive materials) should not occur in the critical action floodplain.

Formation: In geology, the primary unit of formal stratigraphic mapping or description. Most formations possess certain distinctive features.

Fugitive emissions: Emissions to the atmosphere from pumps, valves, flanges, seals, and other process points not vented through a stack. Also includes emissions from area sources such as ponds, lagoons, landfills, and piles of stored material.

Fusion: The combining of two light nuclei (such as hydrogen isotopes or lithium) to form a heavier nucleus. Fusion is accompanied by the release of large amounts of energy.

Gamma radiation: High-energy, short wavelength, electromagnetic radiation emitted from the nucleus of an atom during radioactive decay. Gamma radiation frequently accompanies alpha and beta emissions and always accompanies fission. Gamma rays are very penetrating and are best stopped or shielded by dense materials, such as lead or depleted uranium. Gamma rays are similar to, but are usually more energetic than, x-rays.

Genetic effects: Changes in reproductive cells that may result in abnormal offspring of humans or animals (National Council on Radiation Protection [NCRP] 105).

Geology: The science that deals with the Earth: the materials, processes, environments, and history of the planet, including the rocks and their formation and structure.

Glovebox: An airtight box used to work with hazardous material, vented to a closed filtering system, having attached gloves that go into the box permitting work therein.

Groundwater: Water found beneath the Earth’s surface.

Half-life (radiological): The time in which half the atoms of a radioactive substance undergo radioactive decay; this varies for specific radioisotopes from millionths of a second to billions of years.

Hazard analysis: The assessment of hazardous situations potentially associated with a process or activity. It includes the identification of material, system, process, and plant characteristics that can produce undesirable consequences. A safety analysis report hazard analysis examines the complete spectrum of potential accidents that could expose members of the public, on-site workers, facility workers, and the environment to hazardous materials. (See “Safety analysis report.”)

Hazard category: Classification of nuclear facilities and operations for the potential of on-site and off-site effects from accidents. The criteria for distinguishing among hazard categories are found in DOE Order 5480.23, *Nuclear Safety Analysis Reports*.

Hazard index (HI): An indicator of the potential toxicological hazard from exposure to a particular substance; one such HI is the ratio of the estimated exposure to the estimated safe

exposure. No toxicological effects would be expected where the HI is less than 1.0.

Hazardous air pollutants (HAPs): Air pollutants not covered by ambient air quality standards but that may present a threat of adverse human health effects or adverse environmental effects. Those specifically listed in 40 CFR 61.01 are asbestos, benzene, beryllium, coke oven emissions, inorganic arsenic, mercury, radionuclides, and vinyl chloride. More broadly, HAPs are any of the 189 pollutants listed in or pursuant to Section 112(b) of the *Clean Air Act*. Very generally, HAPs are any air pollutants that may realistically be expected to pose a threat to human health or welfare.

Hazardous material: A material, including a hazardous substance, as defined by 49 CFR 171.8 that poses a risk to health, safety, and property when transported or handled.

Hazardous waste: A solid waste that, because of its quantity, concentration, or physical chemical or infectious characteristics, may significantly contribute to an increase in mortality; or may pose a potential hazard to human health or the environment when improperly treated, stored, or disposed. The *Resource Conservation and Recovery Act of 1980* defines a “solid” waste as including solid, liquid, semisolid, or contained gaseous material (42 U.S.C. 6901 *et seq.*). By definition, hazardous waste has no radioactive components.

Heredity effects: Changes that are passed on to succeeding generation of offspring. See “Genetic effects.”

High-efficiency particulate air (HEPA) filter: A throwaway, extended media, dry-type filter with a rigid casing enclosing the full depth of the pleats. The filter exhibits a minimum efficiency of 99.97 percent when tested with an aerosol of essentially monodispersed 0.3 micrometer diameter test aerosol particles.

High explosives (HE): Any chemical compound or mechanical mixture that, when subjected to heat, impact, friction, shock, or other suitable initiation stimulus, undergoes a very rapid chemical change with the evolution of large volumes of highly heated gases that exert pressure in the surrounding medium. Defined by 40 CFR 261.23 as any material that exhibits the characteristic of reactivity.

High explosives fabrication: The ability to fabricate any chemical compound or mechanical mixture that, when subjected to heat, impact, friction, shock, or other suitable initiation stimulus, undergoes a very rapid chemical change with the evolution of large volumes of highly heated gases that exert pressures in the surrounding medium.

High-level waste (HLW): The highly radioactive waste that results from reprocessing spent nuclear fuel and irradiated targets from reactors and is liquid before it is treated and solidified. LANL has no HLW in its inventory.

Highly enriched uranium (HEU): A mixture of uranium isotopes in which the abundance of the isotope uranium-235 is increased to 20 percent or more by weight, well above normal (naturally occurring) levels.

Historic context: A planning unit that is based on a shared theme, specific time period, and geographical area. Historical contexts are developed for predicting the types of sites and activities that may have taken place and determining how the sites might fit into the context. The evaluation process using the historic context to identify data deficits as criteria for evaluation.

Historic district: A significant concentration, linkage, or continuity of sites, buildings, structures, or objects historically or aesthetically united by plan or physical development and eligible for inclusion in the National Register of Historic Places because of cultural significance.

Hydrodynamic test: High-explosives nonnuclear experiment to investigate hydrodynamic aspects of primary function up to mid to late stages of pit implosion.

Hydrodynamics: The study of the motion of a fluid and of the interactions of the fluid with its boundaries, especially in the case of an incompressible inviscid fluid.

Hydrology: The science dealing with the properties, distribution, and circulation of water on and below the Earth's surface and in the atmosphere.

Implosion: Sudden inward compression and reduction in volume.

Incident-free risk: The risk of effects during normal conditions, not including the additional risk posed by incidents and accidents.

Index: A selected recent data set that is considered representative of current conditions and serves as a baseline for projecting future changes.

Indirect economic effects: Indirect effects result from the need to supply industries experiencing direct economic effects with additional outputs to allow them to increase their production. The additional output from each directly affected industry requires inputs from other industries within a region (i.e., purchases of goods and services). This results in a multiplier effect to show the change in total economic activity resulting from a new activity in a region.

Inertial confinement fusion (ICF): A laser-initiated nuclear fusion using the inertial properties of the reactants as a confinement mechanism.

Infrastructure: The basic services, facilities and equipment needed for the functioning and growth of an area.

Interim (permit) status: Period during which treatment, storage, and disposal facilities coming under the *Resource Conservation and Recovery Act of 1980* are temporarily permitted to operate while awaiting denial or issuance of a permanent permit.

Intersite: Transportation or other activities involving other sites.

Intrasite: Transportation or activities occurring solely within the boundaries of a facility.

Ion: An atom or molecule that has gained or lost one or more electrons to become electrically charged.

Ion exchange: A unit physiochemical process that removes ions, including radionuclides, from liquid streams (usually water) for the purpose of purification or decontamination.

Ionizing radiation: Radiation with sufficient energy to displace electrons from atoms or molecules, thereby producing ions.

Isolated find: A single artifact with no verifiable association with other cultural resources or other elements that would enlarge the historic information it contains.

Isotope: Nuclei of the same element with different numbers of neutrons are isotopes of the element. Isotopes have the same chemical properties but may have different radioactive properties.

Joint test assembly: A nonnuclear test configuration, with diagnostic instrumentation, of a warhead or bomb.

Key facility: Certain LANL facilities that were selected for special attention in the SWEIS. Selection criteria for key facilities are discussed in volume I, section 2.2.2 of the SWEIS.

Kiva: In this SWEIS, one of the remote-controlled critical assembly buildings

associated with the Los Alamos Critical Experiment Facility (LACEF).

Laser: A device that produces a beam of monochromatic (single-color) “light” in which the waves of light are all in phase. This condition creates a beam that has relatively little scattering and has a high concentration of energy per unit area.

Latent cancer fatality (LCF): Death from cancer resulting from, and occurring some years after, exposure to excess ionizing radiation or other carcinogens.

Limiting condition for operation (LCO): The lowest functional capability or performance levels of safety-related structures, systems, components, and their support systems required for normal, safe operation of the facility.

Lithic scatter: Concentrations of stones showing evidence of human manufacturing of stone tools, including finished artifacts, roughly formed artifacts, the cores of stone from which they were made, and the waste flakes from the tool manufacturing process.

Low-income population: Community in which 25 percent or more of the population is characterized as living in poverty. The SWEIS uses the U.S. Bureau of the Census 1990 data to establish poverty thresholds; the 1990 poverty threshold for unrelated individuals was a 1989 income of \$6,451 for those under age 65; \$5,947 for those age 65 and older; and \$12,674 for a family of four.

Low-level radioactive mixed waste (LLMW): Waste that contains both hazardous and low-level radioactive components. The hazardous component in LLMW is subject to regulation under the *Resource Conservation and Recovery Act of 1980*.

Low-level radioactive waste (LLW): All radioactive waste that is not classified as high-level waste, transuranic waste, spent nuclear

fuel, or “11e(2) by-product material” as defined by DOE Order 5820.2A, *Radioactive Waste Management*. Byproduct material includes the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as LLW, provided the concentration of transuranic waste is less than 100 nanocuries per gram.

Manufacturing: For the purpose of the SWEIS, the terms “fabrication” and “manufacturing” are synonymous. LANL has an existing capability to fabricate or manufacture plutonium parts. That is, the equipment, knowledge, supporting infrastructure, and administration procedures and controls exist at LANL to create plutonium metallic shapes to precise specifications. This capability is currently used in support of existing missions for research and development and to build prototypes of parts.

Maximally exposed individual (MEI): A hypothetical person whose location and habits result in the highest concentration or exposure and who takes no protective actions to lessen his or her exposure.

Maximum contaminant level (MCL): The MCL is the maximum permissible level of a contaminant in water that is delivered to any user of a public water system, as measured within the system or at entry points, depending upon the contaminant (40 CFR 141).

Megawatt (MW): A unit of power equal to 1 million watts. Megawatt thermal is commonly used to define heat produced, while megawatt electric defines electricity produced.

Meteorology: The science dealing with the atmosphere and its phenomena, especially as relating to weather.

Migration: The natural movement of a material through the air, soil, or groundwater; also, seasonal movement of animals from one area to another.

Migratory Bird Treaty Act: This act states that it is unlawful to pursue, take, attempt to take, capture, possess, or kill any migratory bird, or any part, nest, or egg of any such bird other than permitted activities.

Minority population: Area where minority individuals comprise 25 percent or more of the population. Minority refers to people who classified themselves in the 1990 U.S. Census as African Americans, Asian or Pacific Islanders, American Indians, Hispanics of any race or origin, or other non-White races.

Mitigation: The alleviation of adverse impacts on resources by avoidance, by limiting the degree or magnitude of an action, by repair or restoration, by preservation and maintenance that reduces or eliminates the impact, or by replacing or providing substitute resources or environments.

Mixed oxide (MOX): A physical blend of uranium oxide and plutonium oxide that can be used as fuel in a nuclear reactor.

Mixed waste: See low-level radioactive mixed waste.

National Ambient Air Quality Standards (NAAQS): Air quality standards established by the *Clean Air Act*, as amended. The primary NAAQS are intended to protect the public health with an adequate margin of safety, and the secondary NAAQS are intended to protect the public welfare from any known or anticipated adverse effects of a pollutant.

National Emission Standards for Hazardous Air Pollutants (NESHAP): A set of national emission standards for listed hazardous pollutants emitted from specific classes or categories of new and existing sources. These

standards were implemented in the *Clean Air Act Amendments of 1977*.

National Environmental Research Park (NERP): An outdoor laboratory set aside for ecological research to study the environmental impacts of energy developments. NERPs were established by DOE to provide protected land areas for research and education in the environmental sciences and to demonstrate the environmental compatibility of energy technology development and use.

National Pollutant Discharge Elimination System (NPDES): Federal permitting system required for hazardous effluents regulated through the *Clean Water Act*, as amended.

National Pollutant Discharge Elimination System Permit: Federal regulation (40 CFR Parts 122 and 125) requires permits for the discharge of pollutants from any point source into the waters of the U.S. regulated through the *Clean Water Act*, as amended.

National Register of Historic Places (NRHP): A list of districts, sites, buildings, structures, and objects of prehistoric or historic local, state, or national significance maintained by the Secretary of the Interior. The list is expanded as authorized by Section 2(b) of the *Historic Sites Act of 1935* (16 U.S.C. §462) and Section 101(a)(1)(A) of the *National Historic Preservation Act of 1966*, as amended.

Native American: A tribe, people, or culture that is indigenous to the U.S. Also referred to as American Indians.

Natural phenomena accidents: Accidents that are initiated by events such as earthquakes, tornadoes, floods, etc.

Neutron: An uncharged elementary particle with a mass slightly greater than that of the proton, found in the nucleus of every atom heavier than hydrogen-1. A free neutron is

unstable and decays with a half-life of about 13 minutes into an electron and a proton.

Neutron flux: The product of neutron number density and velocity (energy) giving an apparent number of neutrons flowing through a unit area per unit time.

Noise: Unwanted or undesirable sound, usually characterized as being so loud as to interfere with, or be inappropriate to, normal activities such as communication, sleep, study, or recreation.

Noncriteria pollutant: A pollutant with an effects screening level guideline. Some noncriteria pollutants have a state standard as well.

Nonattainment area: An air quality control region (or portion thereof) in which the U.S. Environmental Protection Agency has determined that ambient air concentrations exceed National Ambient Air Quality Standards for one or more criteria pollutants.

Nondestructive evaluation: Test method that does not involve damage to or destruction of the test sample; this includes the use of ultrasonics, radiography, magnetic flux, and other techniques.

Nonnuclear component: Any one of the parts of a nuclear weapon that do not contain radioactive or fissile material.

Nonnuclear fabrication: Ability to fabricate nonnuclear components and perform nonnuclear component surveillance.

Nonproliferation: Preventing the spread of nuclear weapons, nuclear weapon materials, and nuclear weapon technology.

Nonproliferation Treaty: A treaty with the aim of controlling the spread of nuclear weapons technologies, limiting the number of nuclear weapons states, and pursuing, in good faith, effective measures relating to the

cessation of the nuclear arms race. The treaty does not invoke stockpile reductions by nuclear states, and it does not address actions of nuclear states in maintaining their stockpiles.

Nuclear component: A part of a nuclear weapon that contains fissionable or fusionable material.

Nuclear facility: A facility with operations that involve radioactive materials in such form and quantity that a nuclear hazard potentially exists to the employees or the general public. Included are facilities that: produce, process, or store radioactive liquid or solid waste, fissionable materials, or tritium; conduct separations operations; or conduct irradiated materials inspection, fuel fabrication, decontamination, or recovery operations. Incidental use of radioactive materials in a facility operation (e.g., check sources, radioactive sources, and x-ray machines) does not necessarily require a facility to be included in this definition.

Nuclear warhead: A warhead that contains fissionable and fusionable material; the nuclear assembly and nonnuclear components packaged as a deliverable weapon.

Nuclear weapons complex: The set of interrelated federal sites and government-owned/contractor-operated facilities supporting the research, development, design, manufacture, testing, and maintenance of the nation's nuclear weapons and the subsequent dismantlement of retired weapons.

Off site (also off-site): As used in the SWEIS, the term denotes a location, facility, or activity occurring outside of the boundary of the entire LANL site.

On site (also on-site): As used in the SWEIS, the term denotes a location or activity occurring somewhere within the boundary of the LANL site.

Operable unit (OU): A discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration or eliminates or mitigates a release, threat of release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units.

Outfall: The discharge point of a drain, sewer, or pipe as it empties into a body of water.

Packaging: The assembly of components necessary to ensure compliance with federal transportation regulations. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The vehicle tie-down system and auxiliary equipment may be designated as part of the packaging.

Paleontology: A science dealing with life of past geological periods as known from fossil remains.

Paleontological resources: Fossils including those of microbial, plant, or animal origin.

Particulate matter (PM), PM₁₀, PM_{2.5}: Any finely divided solid or liquid material other than uncombined (i.e., pure) water. A subscript denotes the upper limit of the diameter of particles included. Thus, PM₁₀ includes only those particles equal to or less than 10 micrometers (0.0004 inch) in diameter; PM_{2.5} includes only those particles equal to or less than 2.5 micrometers (0.0001 inch) in diameter.

Perched aquifer: Groundwater separated from the underlying main body of groundwater, or aquifer, by unsaturated rock.

Perched groundwater: A body of groundwater of small lateral dimensions lying above a more extensive aquifer.

Performance assessment (PA): An analysis that predicts the behavior of a system or system component under a given set of conditions. In the context of “waste management activities,” a systematic analysis of the potential risks posed by waste management systems to the public and environment, and a comparison of those risks to established performance objectives.

Permeability: The degree to which, or rate at which a fluid or gas can pass through a substance.

Perennial: Acting or lasting throughout the year or through many years (perpetual).

Person-rem: A redundancy meaning a dose of 1 rem. When used with a collective dose or population dose, it is a unit for expressing the dose when integrated across all people in the population.

Physical setting: The land and water form, vegetation, and structures that compose the landscape.

Pit: An assembly at the center of a nuclear device containing a subcritical mass of fissionable material.

Plume: The elongated pattern of contaminated air or water originating at a point source, such as a smokestack or a hazardous waste disposal site.

Plutonium: A heavy, radioactive, metallic element with the atomic number 94. It is produced artificially in a reactor by bombardment of uranium with neutrons and is used in the production of nuclear weapons.

Pollution prevention: Involves recycling or reduction of any hazardous substance, pollutant, or contaminate before generation, along with practices that protect natural resources through conservation or more efficient use.

Population dose: See “collective dose.”

Potable: Suitable for drinking.

Pounds per square inch (psi): A measure of pressure. Atmospheric pressure is about 14.7 psi.

Prehistoric: Of, relating to, or existing in times antedating written history. In this SWEIS, prehistoric cultural resources refer to any material remains and items used or modified by people before the establishment of a European presence in the upper Rio Grande Valley in the early 17th Century.

Production: Fabrication or manufacturing of a relatively large quantity of items (as compared to the research and development and prototype capability). Production usually implies an effort to optimize material flows and improve efficiency and yield as well as the reliability of both the product and the process.

Programmatic environmental impact statement (PEIS): A broad-scope EIS prepared in accordance with the requirements of 102(2)(C) of NEPA that analyzes the environmental impacts of proposed federal policies or programs that involve multiple decisions potentially affecting the environment at one or more sites.

Project-specific environmental impact statement: An EIS prepared in accordance with the requirements of 102(2)(C) of NEPA that evaluates the environmental impacts of a single proposed action. See “Environmental impact statement.”

Protected area: An area encompassed by physical barriers, subject to access controls, surrounding material access areas, and meeting the standards of DOE Order 5632.1C, *Protection and Control of Safeguards and Security Interests*.

Pueblo: The communal dwelling of an Indian village of Arizona, New Mexico, or adjacent areas consisting of contiguous flat-roofed stone or adobe houses in groups, sometimes several stories high; an Indian village of the

southwestern U.S.; a member of a group of Indian peoples of the southwestern U.S.

Rad: See “Radiation absorbed dose.”

Radiation: As used in the SWEIS, means ionizing radiation. The emitted particles or photons from the nuclei of radioactive atoms.

Radiation absorbed dose (rad): The basic unit of absorbed dose equal to the absorption of 0.01 joule per kilogram of absorbing material.

Radioactive: The state of emitting radiation energy in forms of waves (rays) or particles.

Radioactive waste: Materials from nuclear operations that are radioactive or are contaminated with radioactive materials, and for which use, reuse, or recovery are impractical.

Radioactivity: The spontaneous decay or disintegration of unstable atomic nuclei, accompanied by the emission of radiation.

Radioisotopes: See “Isotope.”

Radionuclide: Any radioactive element.

Radon: A heavy gaseous, radioactive element with a half life of about 4 days from the decay of radium.

RADTRAN: A computer code combining user-determined meteorological, demographic, transportation, packaging, and material factors with health physics data to calculate the expected radiological consequences and accident risk of transporting radioactive material.

Raptor: Birds of prey including various types of hawks, falcons, eagles, vultures, and owls.

Recharge: Replenishment of water to an aquifer.

Record of Decision (ROD): A document prepared in accordance with the requirements of 40 CFR 1505.2 that provides a concise public record of DOE's decision on a proposed action for which an EIS was prepared. A ROD identifies the alternatives considered in reaching the decision, the environmentally preferable alternative(s), factors balanced by DOE in making the decision, whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why they were not.

Region of influence (ROI): Region in which the principal direct and indirect socioeconomic effects of actions are likely to occur and are expected to be of consequence for local jurisdictions.

Reliability: The ability of a nuclear weapon, weapon system, or weapon component to perform its required function under stated conditions for a specified period of time (essentially equivalent to performance).

Rem (roentgen equivalent man): The conventional unit or radiation dose equivalent. A unit of individual dose of absorbed ionizing radiation used to measure the effect on human tissue. The dosage of an ionizing radiation that will cause the same biological effect as one roentgen of x-ray or gamma-ray exposure.

Remediation: The decontamination of facilities or sites to an acceptable level of contamination suitable for general or specified use.

Remote-handled waste: In general, refers to radioactive waste that must be handled at a distance to protect workers from unnecessary exposure. "Remote-handled transuranic waste" means transuranic waste with a dose rate of 200 millirem per hour or more at the surface of the waste package.

Risk: A quantitative or qualitative expression of possible loss that considers both the

probability that a hazard will cause harm and the consequences of that event.

Risk assessment (chemical or radiological): The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific chemical or radiological materials.

Roentgen: A unit of exposure to ionizing x-ray or gamma radiation equal to 2.58×10^{-4} coulomb per kilogram. (A coulomb is a unit of electrical charge.) A roentgen is approximately equal to 1 rad.

Roentgen Equivalent Man (rem): See "Rem."

Runoff: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and may eventually enter streams.

Safety analysis report (SAR): A safety document providing a concise but complete description and safety evaluation of a site, design, normal and emergency operation, potential accidents, predicted consequences of such accidents, and the means proposed to prevent such accidents or mitigate their consequences. A safety analysis report is designated as final when it is based on final design information; otherwise, it is designated as preliminary.

Safe secure transport (SST): A specially designed trailer, used for transporting nuclear weapons or nuclear weapon components.

Safeguards and security: Program or actions with the express goal of elimination or minimizing the likelihood of unauthorized access to or loss of custody of a nuclear weapon or weapon system, nuclear materials, or sensitive or classified information.

Sanitary wastes: Liquid or solid (includes sludge) wastes that are not hazardous or radioactive and that are generated by industrial,

commercial, mining, or agricultural operations or from community activities.

Scope: In a document prepared pursuant to the *National Environmental Policy Act of 1969*, the range of actions, alternatives, and impacts to be considered.

Scoping: Involves the solicitation of comments from interested people, groups, and agencies at public meetings, public workshops, in writing, electronically, or via fax to assist DOE in defining the proposed action, identifying alternatives, and developing preliminary issues to be addressed in an environmental impact statement.

Secondary (assembly): The component of a nuclear weapon that contains elements needed to initiate the fusion reaction in a thermonuclear reaction.

Section 106 process: A *National Historic Preservation Act* (16 U.S.C. §470 *et seq.*) review process used to identify, evaluate, and protect cultural resources eligible for nomination to the National Register of Historic Places that may be affected by federal actions or undertakings.

Sedimentation: The settling out of soil and mineral solids from suspensions under the force of gravity.

Seismic: Pertaining to any earth vibration, especially an earthquake.

Seismic zone: Geographic region that is assumed to possess uniform earthquake potential throughout.

Seismicity: Occurrence of earthquakes in space and time.

Setting: The physical environment of a property.

Severe accident: An accident with a frequency rate of less than 10^{-6} per year that would have

more severe consequences than a design-basis accident, in terms of damage to the facility, off-site consequences, or both.

Sewage: The total of organic waste and wastewater generated by an industrial establishment or a community.

Shielding: A material placed between a radiation source and a receptor that absorbs the radiation, thus reducing the exposure to the receptor.

Short-lived nuclides: Radioactive isotopes with half-lives no greater than about 30 years (e.g., cesium-137 and strontium-90).

Site-wide environmental impact statement (SWEIS): A type of programmatic EIS that analyzes the environmental impacts of all or selected functions at a DOE site. As part of its regulations for implementation of NEPA, DOE prepares site-wide EISs for certain large, multiple-facility DOE sites; it may prepare EISs or EAs for other sites to assess the impacts of all or selected functions at those sites (10 CFR 1021.330 [c]).

Socioeconomics: The social and economic condition in the study area.

Solid waste management unit (SWMU): Any unit from which hazardous constituents may migrate, as defined by the *Resource Conservation and Recovery Act*. A designated area that is or is suspected to be the source of a release of hazardous material into the environment that will require investigation and/or corrective action.

Source material: In general, material from which special nuclear material can be derived. Under the *Atomic Energy Act* and U.S. Nuclear Regulatory Commission regulations, “source material” means uranium and thorium in any physical or chemical form, as well as ores that contain 1/20 of 1 percent (0.05 percent) or more by weight of uranium or thorium.

Source term: The quantity of material released and parameters such as exhaust temperature that determine the downwind concentration, given a specific meteorological dispersion condition.

Special nuclear material (SNM): As defined in Section 11 of the *Atomic Energy Act of 1954*, special nuclear material means (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the U.S. Nuclear Regulatory Commission determines to be special nuclear material or (2) any material artificially enriched by any of the foregoing.

Species of concern: Includes species that are considered to be potential candidates for addition to the List of Endangered Species (50 CFR 17) by the federal agency responsible for *Endangered Species Act* compliance oversight, the U.S. Fish and Wildlife Service. These are primarily species for which there is insufficient information on biological vulnerability and threat to warrant legal protection.

Stabilization: Actions taken to further confine or reduce the hazards associated with residues as necessary for safe management and responsible storage.

START I and II: Strategic Arms Reduction Talks (also Treaty) (START) refer to negotiations between the U.S. and the U.S.S.R. (the former Soviet Union during START I negotiations) aimed at limiting and reducing nuclear arms. START I discussions began in 1982 and eventually led to a ratified treaty in 1988. START II discussions, which are now in progress, will attempt to further reduce the acceptable levels of nuclear weapons ratified in START I.

State Historic Preservation Office(r) (SHPO): A position in each U.S. state that coordinates state participation in the implementation of the *National Historic Preservation Act* (16 U.S.C. §470 *et seq.*). The SHPO is a key participant in the Section 106

process, assisting in the steps of identification of eligible resources, evaluating effects of undertakings, and developing mitigation measures or management plans to reduce any adverse effects to eligible cultural resources.

Stockpile management: Operations associated with producing, maintaining, refurbishing, surveilling, and dismantling the nuclear weapons stockpile.

Stockpile stewardship: Activities associated with research, design, development, and testing of nuclear weapons and the assessment and certification of their safety and reliability.

Stockpile surveillance: Routine and periodic examination, evaluation, and testing of stockpile weapons and weapon components to ensure that they conform to performance specifications and to identify and evaluate the effect of unexpected or age-related requirements.

Strike: The direction or trend that a structural surface (e.g., a bedding or fault plane) takes as it intersects the horizontal.

Surface water: Water on the Earth's surface, as distinguished from water in the ground (groundwater).

Technical safety requirements (TSRs): Those requirements that define the conditions, the safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear facility and to reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from radiation exposures due to inadvertent criticality. TSRs consist of safety limits, operating limits, surveillance requirements, administrative controls, use and application instructions, and the basis thereof. TSRs were formerly known as "operational safety requirements" for nonreactor nuclear facilities and "technical specifications" for reactor facilities.

Threatened and endangered (T&E) species:

Animals, birds, fish, plants, or other living organisms threatened with extinction by human-produced or natural changes in their environment. Requirements for declaring species threatened or endangered are contained in the *Endangered Species Act of 1973*.

Total effective dose equivalent (TEDE): The sum of the effective dose equivalent from external exposures and the committed effective dose equivalent from internal exposures (10 CFR 835).

Toxic waste: Individual chemical wastes (liquid or solid), such as polychlorinated biphenyls or asbestos, that are regulated by the *Toxic Substances Control Act*.

Transuranic (TRU) waste: Waste, without regard to source or form, that is contaminated with alpha-emitting radionuclides of atomic number greater than 92 (uranium) and with half-lives greater than 20 years in concentrations greater than 100 nanocuries per gram.

Traditional cultural property (TCP): A significant place or object associated with historical and cultural practices or beliefs of a living community that is rooted in that community's history and is important in maintaining the continuing cultural identity of the community.

Tritium: A radioactive isotope of the element hydrogen with two neutrons and one proton. Common symbols for the isotope are H-3 and T.

Unreviewed safety question: A proposed change, test, or experiment is considered to involve an unreviewed safety question if: (1) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety evaluated previously by safety analyses will be significantly increased or (2) a possibility for an accident or malfunction of a different type than

any evaluated previously by safety analyses will be created that will result in significant safety consequences.

Uranium: A heavy, silvery-white metallic element (atomic number 92) with many radioactive isotopes. Uranium-235 is most commonly used as a fuel for nuclear fission. Another isotope, uranium-238, can be transformed into fissionable plutonium-239 by its capture of a neutron in a nuclear reactor.

Volatile organic compounds (VOCs): A broad range of organic compounds, often halogenated, that vaporize at ambient or relatively low temperatures, such as benzene, chloroform, and methyl alcohol.

War reserve: Operational weapons and materials designated as essential for national security needs.

Waste acceptance criteria (WAC): Requirements established by treatment, storage, and disposal facilities for the acceptance of waste into a facility.

Waste characterization: The identification of waste composition and properties by reviewing process knowledge, nondestructive examination, nondestructive assay, or sampling and analysis. Characterization provides the basis for determining appropriate storage, treatment, handling, transportation, and disposal requirements.

Waste generator: For the purpose of the SWEIS, any individual or group of individuals who generate radioactive, mixed, hazardous, or other types of wastes at LANL.

Waste Isolation Pilot Plant (WIPP): A DOE facility designed and authorized to permanently dispose of transuranic radioactive waste in a mined underground facility in deep geologic salt beds. It is located in southeastern New Mexico, 26 miles (42 kilometers) east of the City of Carlsbad.

Waste management: The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated pollution prevention, surveillance, and maintenance activities.

Waste minimization: Actions that economically avoid or reduce the generation of waste by source reduction, by reducing the toxicity of hazardous waste, by improving energy usage, or by recycling.

Watershed: For the purposes of the SWEIS, a watershed was defined as that region contributing water to major identified stream channels, which ultimately become tributaries or drain into tributaries to an 11-mile (18-kilometer) segment of the Rio Grande between Otowi Bridge and Frijoles Canyon.

Weapon component: An item in a nuclear weapon that can be either an assembly or individual subset of an assembly. The word “component” can be used interchangeably with “part” or “subassembly.”

Weapons laboratories: Colloquial term for the three DOE national laboratories—Los Alamos,

Lawrence Livermore, and Sandia—that are responsible for the design, development, and stewardship of U.S. nuclear weapons.

Weapon system: Collective term for the nuclear assembly and nonnuclear components, subsystems, and systems that compose a nuclear weapon.

Wetland: Land or areas exhibiting hydric (requiring considerable moisture) soil concentrations, saturated or inundated soil during some portion of the year, and plant species tolerant of such conditions.

Whole-body dose: Dose resulting from the uniform exposure of all organs and tissues in a human body.

Wind rose: A depiction of wind speed and direction frequency for a given period of time.

X-rays: Penetrating electromagnetic radiation having a wavelength much shorter than that of visible light. X-rays are identical to gamma rays, but originate outside the nucleus, either when the inner orbital electrons of an excited atom return to their normal state or when a metal target is bombarded with high-speed electrons.